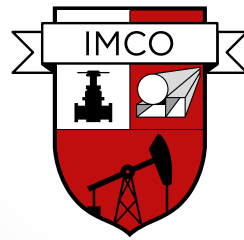
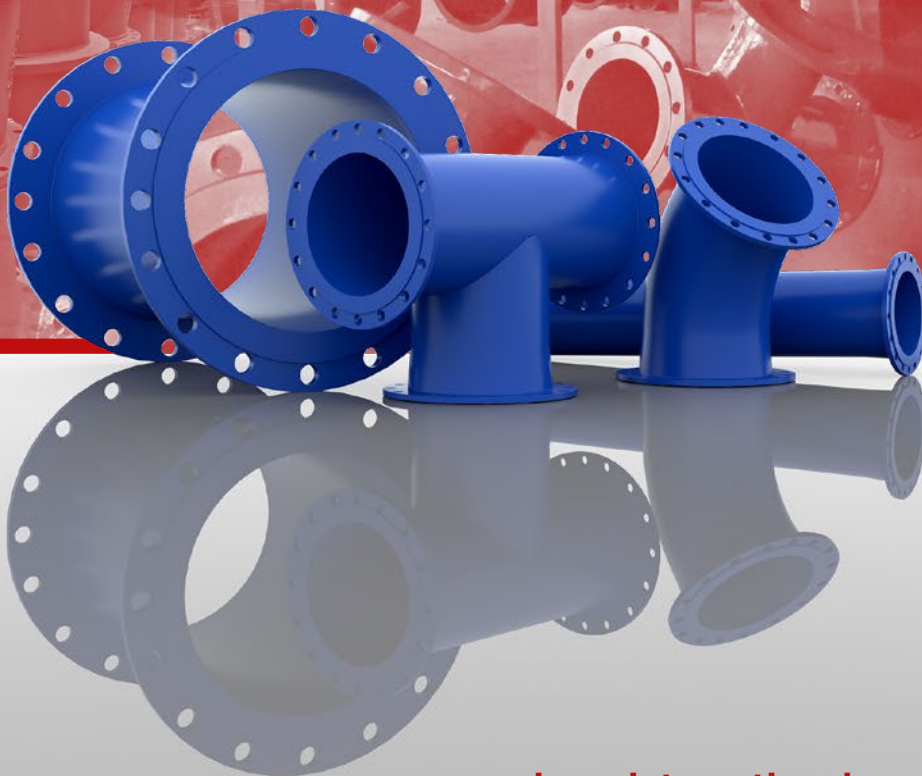
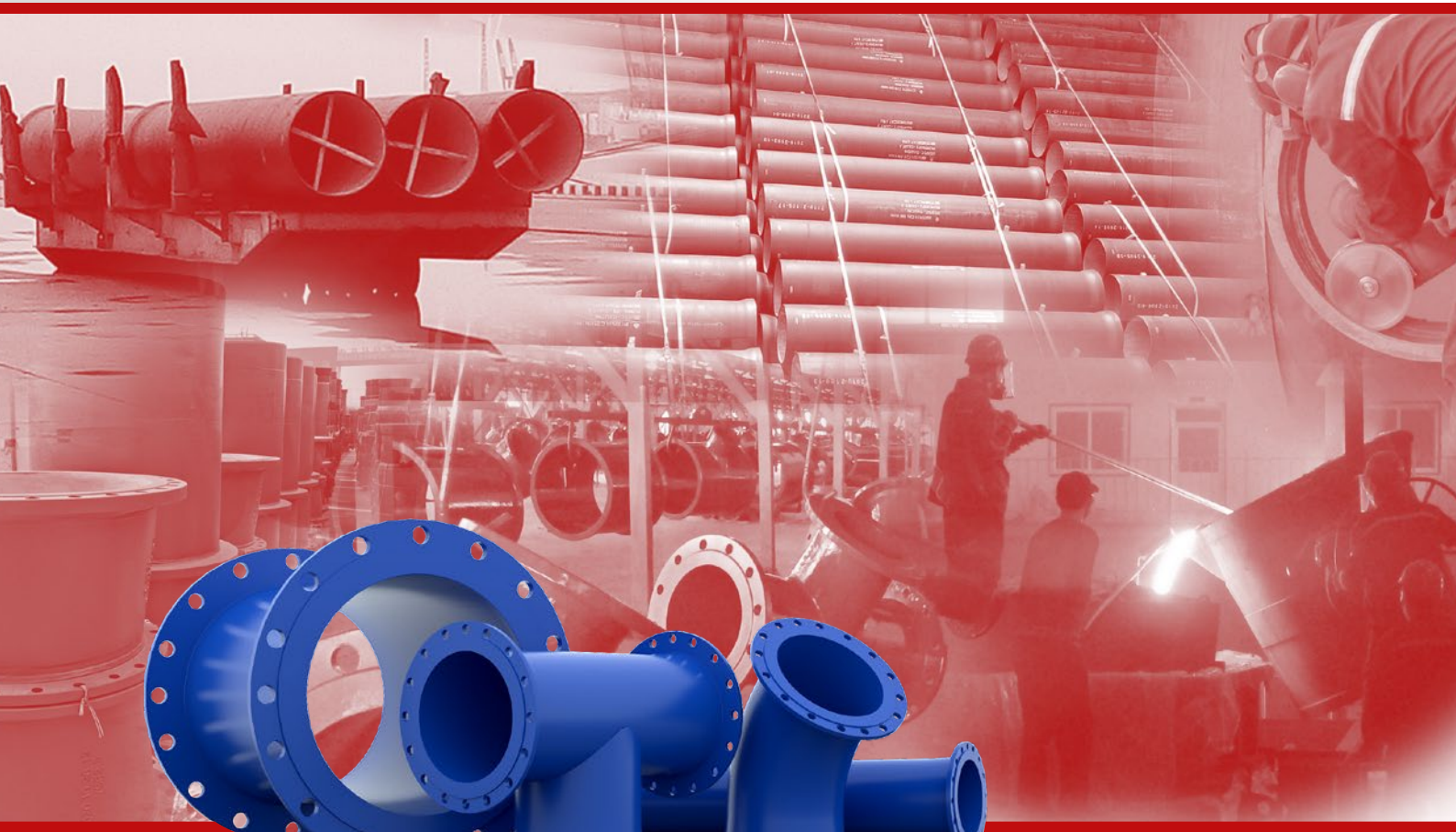


IMCO INTERNATIONAL LTD

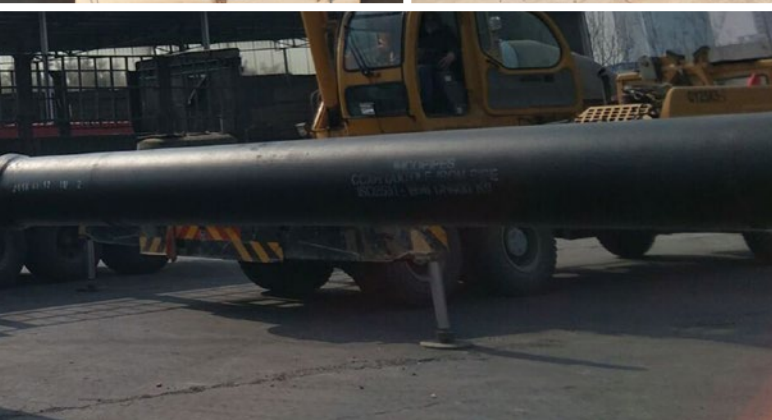
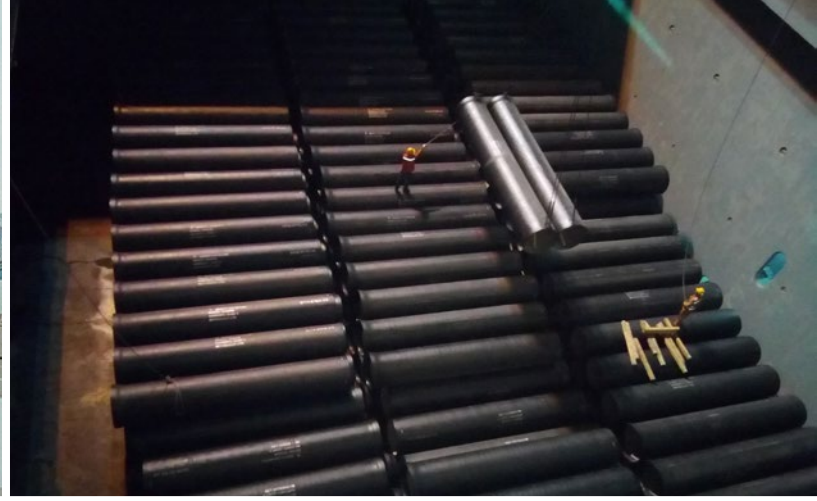


We serve the world

Ductile Iron Pipes & Fittings
Technical Catalogue



www.imco.international
2022



About Imco International

Imco International is a professional company and brand who offer a large range of ductile iron pipes, fittings & valves for water distribution, waste water treatment and fire protection.

Our ductile iron pipes & fittings are produced in China using high-tech modern equipment which is inspected regularly to meet both our high standards and industry standards ensuring that the quality of our products is very high. Our production process caters for sizes from DN80 up to DN2600 according to ISO2531, EN545, EN598 or other internationally recognised equivalent standards. For internal linings and external coatings, we offer a large variety of solutions including fusion bonded Epoxy, Bitumen, Polyurethane and others, the majority of which are WRAS approved.

The history of Imco International as a brand dates back to 1967 and since then, we have developed a wide range of products for the water industry. Our emphasis on high quality, reliability and customer service has helped Imco International to maintain our position at the forefront of the market in many parts of the world. All products supplied by Imco International are quality controlled to European or equivalent standards and consistently spot-checked in order to guarantee high quality. We believe this is one of the reasons why many of our clients have continued to use Imco International for decades.



Our products have been successfully installed in 22 countries across the world.

Our company follows the philosophy of having empathy and a connection with the clients' needs. Therefore, we try to understand your needs better than any other company. We also believe that a high level of business ethics together with transparency helps to maintain trust between our valued clients and Imco International.



Helping to create sustainable water supply across Africa and Asia

1 in 3 people globally do not have access to safe drinking water – World Health Organisation, 2019



Water is a valuable and under appreciated resource which must be protected. In order to improve network performance and save precious water resources, at Imco International we strive to work with clients' requirements. Using cutting edge technology alongside high quality materials we develop a wide range of products which produce highly reliable solutions, reducing and protecting against leakage.

In addition to this commitment to the development of our products we also ensure that both we and our partner factories uphold the highest standards with regards to safety as well as to the environment.



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Advantages of Ductile Iron

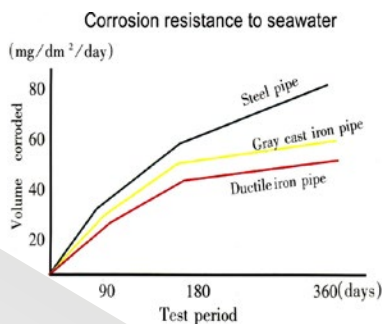
Ductile iron pipes are made from spherical graphite cast iron using a centrifugal spinning process. In conjunction to this, our ductile iron fittings utilise the lost-foam casting process together with induction melting processes. This manufacturing technique ensures that fittings are dimensionally accurate and also provides a good surface quality of the final cast fittings. Imco International’s ductile iron pipes & fittings can convey many fluid medias such as water, oil and gas and are widely used in pipeline projects for water conservancy, metallurgy, mining, petroleum and public service utilities.

Ductile iron on its own has better mechanical properties than steel or grey cast iron as demonstrated in the following table:

Type of Pipe	Mechanical Properties		
	Tensile strength	Elongation (%)	Hardness (HB)
Ductile Iron Pipe	≥420 N/mm ²	(DN≤1000) ≥10 (DN>1000) ≥7	≤230
Grey Cast Iron Pipe	150-260 N/mm ²	Negligible	≤230
Steel Pipe	≥400 N/mm ²	≥18	Approx. 140

High Corrosion Resistance:

Better corrosion resistance than Steel pipe and Grey cast iron pipe:



Type of Pipe	Corroded volume when merged into seawater (gr/cm ²)	
	After 45 days	After 90 days
Ductile Iron pipe	0.0060	0.0090
Gray Cast Iron pipe	0.0060	0.0103
Steel Pipe	0.0294	0.0396

Mechanical Properties Ductile Iron Pipes:

The mechanical properties of pipes will be as shown in the table:

Type of Cast	Minimum Tensile strength	Minimum Elongation Percent After fracture		Hardness Max.(HB)
	DN80-2600	DN80-1000	DN1100-2600	
Pipes centrifugally cast	420 MPa	10 %	7 %	230
Pipes not centrifugally cast, fittings and accessories	420 MPa	5 %	5 %	250

Note:

1. By agreement between manufacturer and purchaser, the 0.2% proof stress may be measured. It shall be not less than 270 MPa when A ≥12% for DN80-1000 or 10% for DN > 1000
2. For centrifugally cast pipes of DN80 to DN1000, the minimum elongation after fracture shall be 7% for thickness classes greater than K12

Quality Control

Hydrostatic test pressure at works:

Pipes and fittings are subjected to a hydrostatic test for a duration of at least 10 seconds at the minimum internal test pressure given in the table:

DN (mm)	Minimum work test pressure (Bar)			
	Pipes centrifugally cast		Pipes not centrifugally cast and fittings	
	K<9	K≥9	Class C	All thickness classes
≤ DN300	$0.5(k+1)^2$	50	Equal to the pressure class	25 ²
350–600	$0.5k^2$	40		16
700–1000	$0.5(k-1)^2$	32		10
1200–2000	$0.5(k-2)^2$	25		10
2200–2600	$0.5(k-3)^2$	18		10

- The works hydrostatic test pressure for fittings is less than that for pipes because the shape of fittings makes it difficult to provide sufficient restraint to high pressure during test.
- 16 bar for pipes and fittings with PN10 flanges.

- **Design flexibility:** Ductile iron pipes will safely function over a wide range of operating pressures, trench loads and installation conditions. A range of protective paints or coatings can ensure the pipes and fittings are suitable for even the most aggressive soil conditions.
- **Easier Handling:** Ductile iron pipes and fittings can be more easily manoeuvred under and around existing underground obstacles, therefore eliminating unnecessary changes in line or grade.
- **Superior Joints:** Easily assembled push in joints speed up the projects' progress and minimise installation costs. Our joints remain leakproof under all operating pressures.
- **A complete range:** Ductile iron pipes are available with a complete range of fittings and accessories up to DN2600 along with a large variety of coatings.



Quality Control

Ductile iron pipes & fittings are subjected to tests and inspections at factory, including composition metallographic examination, composition analysis, surface finish & dimension inspection, tensile test, ring test, hardness test, hydrostatic test, lining and coating test to ensure that all products meet the full requirements of relevant standards. In addition to the standard tests and inspections Imco International also offer the option of further inspection by an independent and reputable inspection company such as SGS.

In addition to this, all coatings, linings and rubber gaskets are WRAS approved.



Quality Control

Quality Management System & Standards

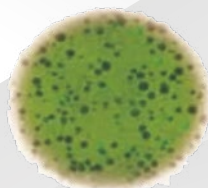
In accordance with our ethos of providing first class quality products to our clients, Imco International in collaboration with our factories have introduced an advanced management system and established a strict quality control system. All of our ductile iron pipe products have passed the certification of GB13295, EN545 or ISO2531.



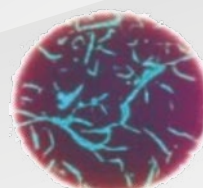
Standard	Chinese standard GB	European standard EN	International standard ISO
Product standard of pressure ductile iron pipe	GB13295	EN545	ISO2531
T-type joint	GB13295	EN681-1	ISO4633
Comfortable joint	GB13295 (Supplement)	EN681-1	ISO4633
Product standard of ductile iron pipe for sewage		EN598	SO7186
Technical requirements for rubber ring materials		EN681-1	ISO4633
Zinc and bituminous coating	GB17456	EN545	ISO8179-1
Cement lining	GB17457		ISO4179
Management standard for production and sales quality			ISO9001
Environmental management standards			ISO14001

Physical properties

Ductile iron is a high performance material, first developed in 1948, which was a leap forward in the metallurgical industry. Graphite in ductile iron exists in the spherical form, so the mechanical performance of the material itself has been greatly improved. In addition, ductile iron still maintains its traditional characteristics of compressive strength, castability, wear resistance, machinability and endurance. Thanks to the excellent mechanical performance of ductile iron pipe during its processing and manufacturing, it has good load bearing capacity, good extensibility and impact resistance.



Ductile iron
Graphite exists in the spherical form



Traditional grey iron
Graphite exists in flakes

Standards and Options

Anti-corrosion coatings and linings for pipes & fittings

Special coatings can be applied on the external and internal surfaces of both ductile iron pipes and fittings, in order to protect water resources. Without these, due to the corrosivity of the soil or aggressive mediums such as waste water or salt water, after the products are laid, over time the outer and inner walls of the pipes or fittings may begin to rust due to the long-term exposure to these mediums. In turn this may lead to a leak within the system and precious water resources could be wasted. We recommend a variety of special coatings as follows:

- **Portland Cement:** Our most commonly used lining for both Ductile iron pipes and fittings is a portland cement mortar protective layer according to ISO4179. High quality and strictly tested cement raw materials are selected, in order to ensure that the mortar is very solid, dense and smooth.
- **High sulphate-resistant cement:** Has a higher corrosion resistance to highly corrosive mediums such as seawater.
- **High aluminium cement:** For waste water or rain water applications and is according to ISO7186, EN598 and GB/T26081.
- **Fusion bonded epoxy:** Commonly used only for fittings internally and externally it has enhanced corrosion resistant properties. It is applied to a minimum of 250 microns according to EN14901. Available in blue (for water) or red (for sewage) colours.
- **PE liner:** For pipes, this is a new type of pipe material. A thin wall of polyethylene is applied on the inner wall of the pipe. It combines the advantages of both ductile iron and polyethylene pipes together which not only has good mechanical properties, but also has good corrosion resistance.
- **Polyurethane lining:** For pipes or fittings is according to EN15655.
- **Zinc + bituminous paint:** A layer of metallic zinc is first applied (min 200g/m² - which represents a significant increase over European standards which prescribe 130g/m²) followed by a bituminous paint finish or equivalent (minimum thickness of 70 microns) according to ISO8179.
- **Polyethylene sleeving:** A tubular film of polyethylene is slipped over and fitted to the pipe at the time of installation. It can be used as a supplementary protection over and above original coatings for highly corrosive soils or in the presence of stray currents and is according to ISO8180.



The majority of our linings and protective coatings are WRAS approved. For pipes and fittings we can also supply additional bitumen paint for touching up on site if any common impact damage has occurred during transportation. See page 86 for guidelines on transportation and storage.

Coating	External anti-corrosion coating	Internal anti-corrosion coating
Conventional coating	Zinc coating+ external bituminous coating	Cement mortar
Strengthening coating	Zinc coating+ external bituminous coating + polyethylene pipe sleeve and polyurethane coating	Polyurethane coating, epoxy resin coating, epoxy ceramic coating, cement + epoxy resin lining, PE coating
Special coating	To be determined by the site conditions	To be determined by the site conditions

Standards and Options

Ductile iron pipes and fittings are manufactured according to ISO 2531, EN545 or GB13295. EN598 is also available for waste water applications. Pipes and fittings are available in PN10, PN16, PN25 or PN40 pressure ratings. Thicknesses are to K9, K10, K12, K14 or C class. Imco International can offer a variety of connection solutions, depending on the clients' requirements such as self restrained (locking) joints, socket spigot and flanged. Flanges are according to EN1092-2.



Calculation formula of K-grade pipe wall thickness

Wall thickness calculation formula:	$e=K(0.5+0.001DN)$
e:	Nominal wall thickness, mm, (minimum nominal wall thickness is 6mm)
DN:	Nominal diameter, mm
K:	Wall thickness grade, integer: 7,8,9,10,11,12
Minimum wall thickness:	When e = 6mm, the minimum wall thickness is 4.7mm
	When e > 6mm, the minimum wall thickness is $e - (1.3 + 0.001DN)$ mm

Pipe weight calculation formula

Pipe weight calculation formula:	$3.14X \{[(DN/2,000)^2-(DN-2e)/2,000]^2\} \times 6 \times 7,050 + \text{socket weight}$
Pipe weight calculation formula:	Pipe weight = straight pipe weight + socket weight
Straight pipe weight	Straight pipe volume \times density Density: 7,050kg/m ³
Straight pipe volume:	Volume of outer circle - volume of inner circle
Volume of outer circle	$3.14 \times (DN/2,000)^2 \times 6$
Volume of inner circle:	$3.14 \times [(DN-2e)/2,000]^2 \times 6$
Unit conversion:	1000mm = 1m

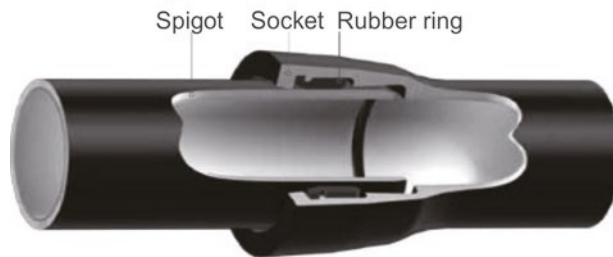
Hydraulic pressure

Specification DN	Minimum pressure at K = 7 (Mpa)	Minimum pressure at K = 8 (Mpa)	Minimum pressure at K = 9 (Mpa)	Minimum test pressure of class C pipe (Mpa)	
				Recommended pressure rating	Pressure
DN80-DN300	3.2	4.0	5.0	C40	4
DN350-DN600	2.5	3.2	4.0	C30	3
DN700-DN1000	1.8	2.5	3.2	C25	2.5
DN1100-DN2000	1.3	1.8	2.5		
DN2200-DN2600	0.8	1.3	1.8	C25	2.5

Ductile Iron Pipe Joints

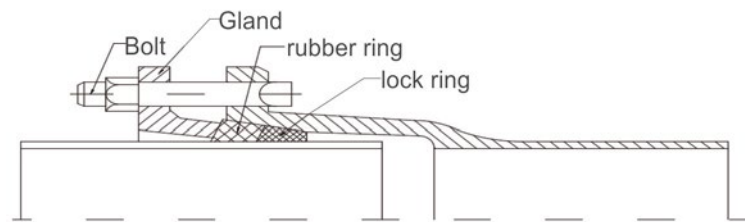
T-type joint

This is a common joint for ductile iron pipes. The rubber ring is divided into soft rubber and hard rubber. Due to the existence of soft rubber part, T-type joint also allows certain angle deflection.



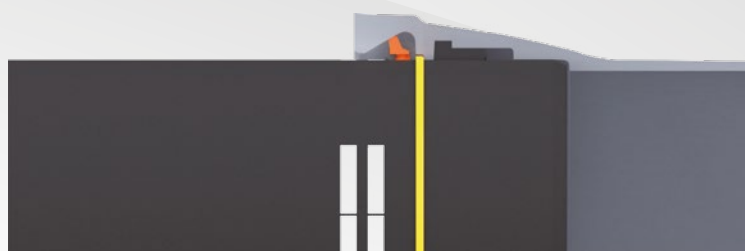
N1-type joint

N1-type ductile iron pipe joint includes bolt, thermal polymer, sealing rubber rings and lock ring.



Internal self-anchored joint

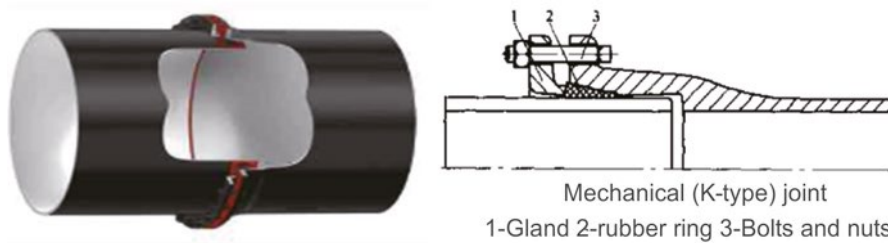
By the thrust transfer between the self-anchored assembly and the socket welding ring, the reliable anti-shedding performance and good deflection performance are realised. In general self-anchored joints feature flexibility and good deflection performance. The self-anchor joint can transfer the axial force to each other. Through the friction and passive earth pressure generated by the pipeline and the surrounding soil, it can effectively counteract the hydraulic thrust generated by axial and radial direction, so it can replace the function of restraining block and realise the design of non-restraining block, with simple structure and high bearing capacity. It is mainly used in cases where space, time or economic conditions are not suitable for the setting of restraining block; that there is a certain foundation settlement, or the slope of pipelines laid on the ground exceeds 20% or the slope of underground pipelines exceeds 25%. Imco International can provide a variety of installation methods as well as technical advice.



Ductile Iron Pipe Joints

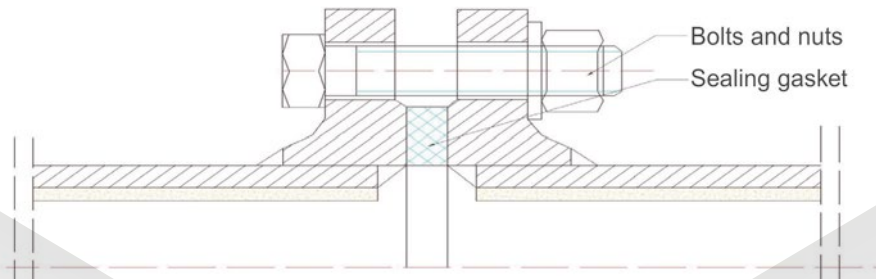
K-type joint

The sealing principle is stated as below: the pressure is transmitted to the gland and then to the rubber ring through bolt fastening, which is sealed after the rubber ring is compressed. It is used in the large diameter pipeline of DN1600-DN2600.



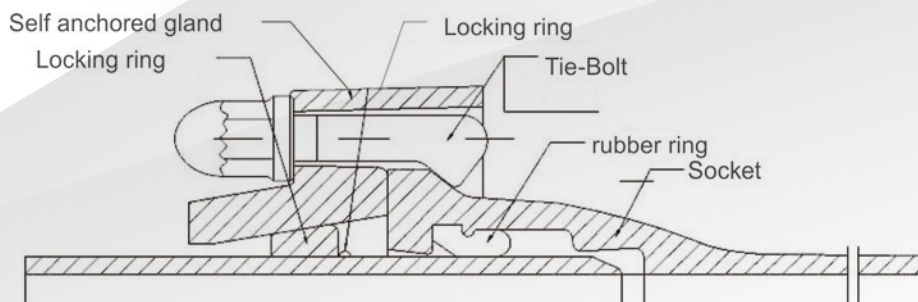
Welded flange joint

The flange joint is sealed by tightening the bolts to make the flange squeeze the sealing ring, it has good sealing performance and is usually used for certain criteria, for example when it is necessary to connect with pump, valve, fire hydrant and pass through foundation, wall and other special needs.



External self-anchored joint

It is evolved from T-type joint. In addition to the advantages of T-type joint, the strong sealing of the joint under high pressure is the highlight.



Pipe Specifications

General dimension table of T-type centrifugal ductile iron pipe (Class K9)

DN	Joint type	Nominal wall thickness enom	Outer diameter of barrel of pipe DE (mm)	Outer diameter of socket D (mm)	Socket depth P (mm)	Effective length Lu
80	T-type	6.0	98	140	85	6
100		6.0	118	163	88	6
125		6.0	144	190	91	6
150		6.0	170	217	94	6
200		6.3	220	278	100	6
250		6.8	274	336	105	6
300		7.2	326	393	110	6
350		7.7	378	448	110	6
400		8.1	429	500	110	6
450		8.6	480	540	120	6
500		9.0	532	604	120	6
600		9.9	635	713	120	6
700		10.8	738	824	150	6

DN	Joint type	Nominal wall thickness enom	Outer diameter of Outer diameter of barrel of pipe DE (mm)	Outer diameter of socket D (mm)	Socket depth P (mm)	Effective length Lu
800	T-type	11.7	842	943	160	6
900		12.6	945	1052	175	6
1000		13.5	1048	1158	185	6
1100		14.4	1152	1270	202	6/8.15
1200		15.3	1255	1378	217	6/8.15
1400		17.1	1462	1600	242	6/8.15
1500		18.0	1565	1710	253	6/8.15
1600		18.9	1668	1821	266	6/8.15
1800		20.7	1875	2043	297	6/8.15
2000		22.5	2082	2262	319	6/8.15
2200		24.3	2288	2482	328	6/8.15
2400		26.1	2495	2702	346.5	6/8.15
2600		27.9	2702	2921	365	6/8.15



Pipe Specifications

Pressure Data sheet for T-type centrifugal ductile iron pipes (Grade K9)

DN	Allowable operating pressure PFA (Mpa)	Maximum allowable operating pressure PMA (Mpa)	Minimum stiffness S (KN/m ²)	Maximum Allowable deflection %
80	6.4	7.7	2400	0.85
100	6.4	7.7	1350	1.05
125	6.4	7.7	800	1.30
150	6.4	7.7	480	1.55
200	6.2	7.4	230	1.90
250	5.4	6.5	155	2.22
300	4.9	5.9	110	2.50
350	4.5	5.4	88	2.70
400	4.2	5.1	72	2.90
450	4.0	4.8	61	3.05
500	3.8	4.6	52	3.25
600	3.6	4.3	41	3.55
700	3.4	4.1	34	3.75
800	3.2	3.8	30	4.00
900	3.1	3.7	26	4.00
1000	3.0	3.6	24	4.00
1100	2.9	3.5	22	4.00
1200	2.8	3.4	20	4.00
1400	2.8	3.3	18	4.00
1500	2.7	3.2	17	4.00
1600	2.7	3.2	17	4.00
1800	2.6	3.1	16	4.00
2000	2.6	3.1	16	4.00
2200	2.6	3.1	15	4.00
2400	2.5	3.0	14	4.00
2600	2.5	3.0	13	4.00



Pipe Specifications

Pressure data sheet for T-type centrifugal ductile iron pipe (Class C)

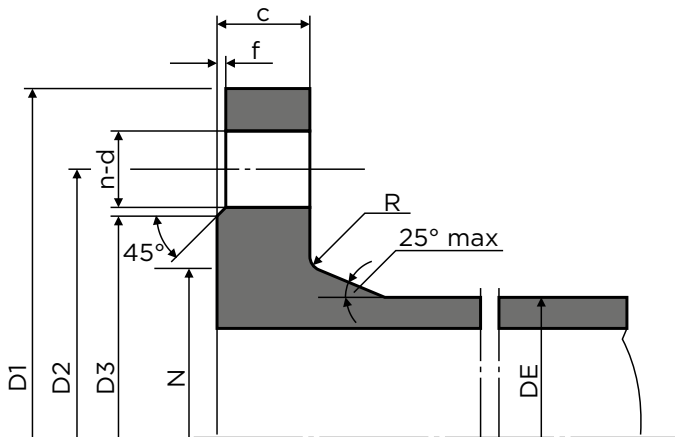
DN (mm)	Preferred pressure rating	Nominal wall thickness mm	Nominal wall thickness mm
80	C40	4.4	3.0
100	C40	4.4	3.0
150	C40	4.5	3.0
200	C40	4.7	3.2
250	C40	5.5	3.9
300	C40	6.2	4.6
350	C30	6.3	4.6
400	C30	6.5	4.8
450	C30	6.9	5.1
500	C30	7.5	5.7
600	C30	8.7	6.8
700	C25	8.8	6.8
800	C25	9.6	7.5
900	C25	10.6	8.4
1000	C25	11.6	9.3
1100	C25	12.6	10.2
1200	C25	13.6	11.1
1400	C25	15.7	13.0
1500	C25	16.7	13.9
1600	C25	17.7	14.8
1800	C25	19.7	16.6
2000	C25	21.8	18.5
2200	C25	23.8	20.3
2400	C25	25.8	22.1
2600	C25	27.9	24.0



Rubber rings

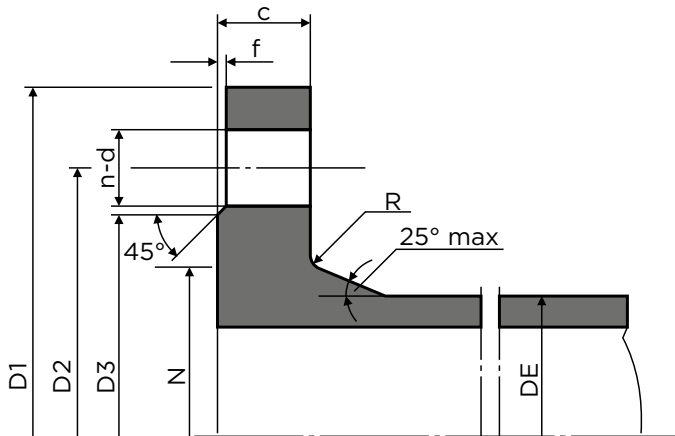
Rubber rings are one of the indispensable accessories in the installation of ductile iron pipe, and they must be used for sealing when installing ductile iron pipes. The rubber rings used for centrifugal ductile iron pipe are specially developed for ductile iron pipe installation. The quality of rubber rings are directly related to the safety of ductile iron pipe engineering. There are many advantages of rubber rings, such as good anti-seismic properties, suitability for direct pipe installation with a small radius bend, good sealing performance of joint, strong adaptability to foundation deformation and no water leakage in certain corners.

PN 10 Flange



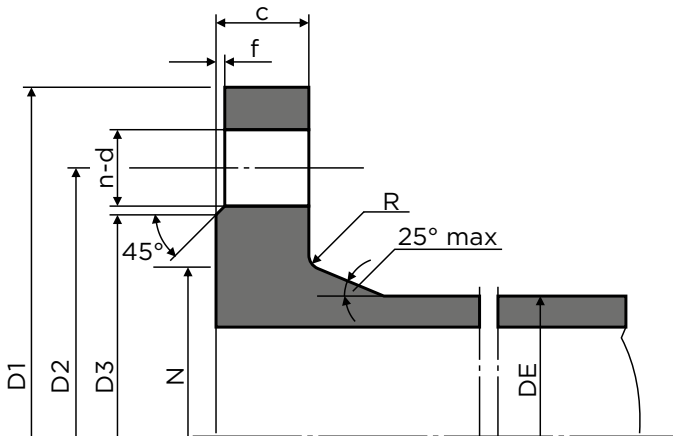
DN	D1	D2	D3	c	f	N	R	n	d	Bolt Size	Mass (kg)
80	200	160	132	19	3	120	6	8	19	M16*65	2,9
100	220	180	156	19	3	140	6	8	19	M16*65	3.3
150	285	240	211	19	3	190	8	8	23	M20*70	4.0
200	340	295	266	20	3	246	8	8	23	M20*70	6.8
250	400	350	319	22	3	298	10	12	23	M20*80	9.6
300	455	400	370	24.5	4	348	10	12	23	M20*80	12.8
350	505	460	429	24.5	4	408	10	16	23	M20*80	14.1
400	565	515	480	24.5	4	456	10	16	28	M24*85	16.3
450	615	565	530	24.5	4	502	12	20	28	M24*85	18.1
500	670	620	582	26.5	4	559	12	20	28	M24*85	20.8
600	780	725	682	30	5	658	12	20	31	M27*100	30.8
700	895	840	794	32.5	5	772	16	24	31	M27*100	40.5
800	1015	950	901	35	5	876	16	24	34	M30*110	54.8
900	1115	1050	1001	37.5	5	976	16	28	34	M30*120	64.3
1000	1230	1160	1112	40	5	1080	16	28	37	M33*130	81.4
1200	1455	1380	1328	45	5	1292	20	32	40	M36*140	120.9
1400	1675	1590	1530	46	5	1496	20	36	43	M39*150	147.8
1600	1915	1820	1750	49	5	1712	20	40	49	M45*160	206.4
1800	2115	2020	1950	52	5	1910	20	44	49	M45*160	236.3
2000	2325	2230	2150	55	5	2120	20	48	49	M45*170	279.4

PN 16 Flange



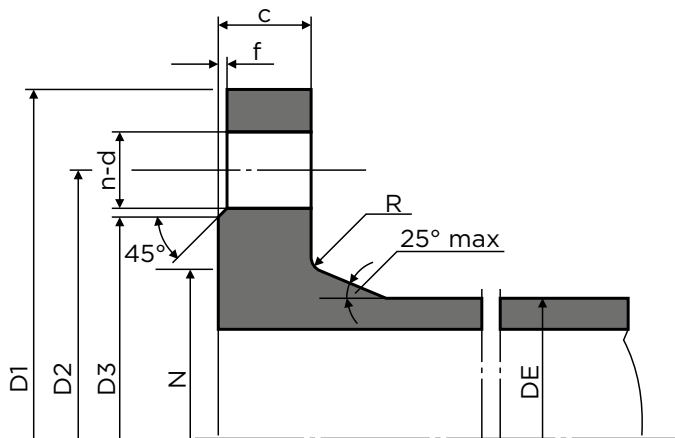
DN	D1	D2	D3	c	f	N	R	n	d	Bolt Size	Mass (kg)
80	200	160	132	19	3	120	6	8	19	M16*65	2.9
100	220	180	156	19	3	140	6	8	19	M16*65	3.3
150	285	240	211	19	3	190	8	8	23	M20*70	4.9
200	340	295	266	20	3	246	8	12	23	M20*70	6.6
250	400	355	319	22	3	296	10	12	28	M24*90	9.2
300	455	410	370	24.5	4	350	10	12	28	M24*90	12.4
350	520	470	429	26.5	4	410	10	16	28	M24*90	17.2
400	580	525	480	28	4	458	10	16	31	M27*100	21.9
450	640	585	548	30	4	516	12	20	31	M27*100	26.7
500	715	650	609	31.5	4	576	12	20	34	M30*110	37.0
600	840	770	720	36	5	690	12	20	37	M33*120	57.3
700	910	840	794	39.5	5	760	16	24	37	M33*120	55.6
800	1025	950	901	43	5	862	16	24	40	M36*140	74.0
900	1125	1050	1001	46.5	5	962	16	28	40	M36*140	88.2
1000	1255	1170	1112	50	5	1076	16	28	43	M39*150	122.9
1200	1485	1390	1328	57	5	1282	20	32	49	M45*170	185.2
1400	1685	1590	1530	60	5	1482	20	36	49	M45*180	215.9
1600	1930	1820	1750	65	5	1696	20	40	56	M52*190	308.4
1800	2130	2020	1950	70	5	1896	20	44	56	M52*200	362.2
2000	2345	2230	2150	75	5	2100	20	48	62	M56*220	432.2

PN 25 Flange



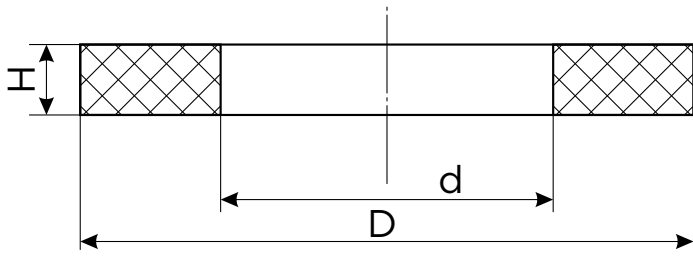
DN	D1	D2	D3	c	f	N	R	n	d	Bolt Size	Mass (kg)
80	200	160	132	19	3	120	6	8	19	M16*65	2.9
100	235	190	156	19	3	142	6	8	23	M20*70	3.8
150	300	250	211	20	3	192	8	8	28	M24*80	5.9
200	360	310	274	22	3	252	8	12	28	M24*80	8.7
250	425	370	330	24.5	3	304	10	12	31	M27*90	13.1
300	485	430	389	27.5	4	364	10	16	31	M27*90	18.0
350	555	490	448	30	4	418	10	16	34	M30*110	25.5
400	620	550	503	32	4	472	10	16	37	M33*120	33.2
450	670	600	548	34.5	4	520	12	20	37	M33*120	42.2
500	730	660	609	36.5	4	580	12	20	37	M33*120	48.7
600	845	770	720	42	5	684	12	20	40	M36*140	71.5
700	960	875	820	46.5	5	780	16	24	43	M39*150	90.3
800	1085	990	928	51	5	882	16	24	49	M45*160	123.2
900	1185	1090	1028	55.5	5	982	16	28	49	M45*170	148.6
1000	1320	1210	1140	60	5	1086	16	28	56	M52*180	200.7
1200	1530	1420	1350	69	5	1296	20	32	56	M52*200	284.7
1400	1755	1640	1560	74	5	1508	20	36	62	M56*220	368.1
1600	1975	1860	1780	81	5	1726	20	40	62	M56*230	485.5
1800	2195	2070	1985	88	5	1920	20	44	70	M64*260	601.9
2000	2425	2300	2210	95	5	2150	20	48	70	M64*270	784.9

PN 40 Flange



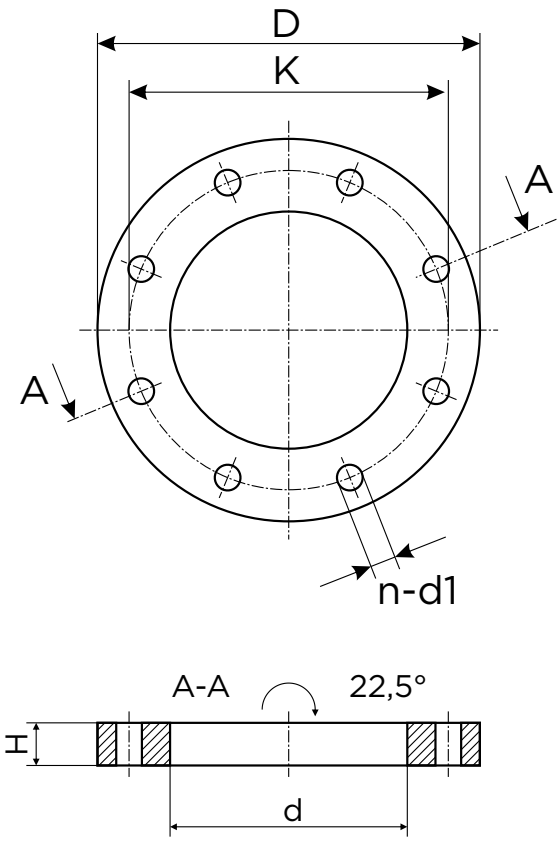
DN	D1	D2	D3	c	f	N	R	n	d	Bolt Size	Mass (kg)
80	200	160	132	19	3	120	6	8	19	M16*65	2.9
100	235	190	156	19	3	142	6	8	23	M20*70	3.8
150	300	250	211	26	3	192	8	8	28	M24*90	8.0
200	375	320	284	30	3	254	8	12	31	M27*100	14.0
250	450	385	345	34.5	3	312	10	12	34	M30*110	23.2
300	515	450	409	39.5	4	378	10	16	34	M30*120	33.5
350	580	510	465	40	4	432	10	16	37	M33*130	46.7
400	660	585	535	48	4	498	10	16	40	M36*140	66.9
450	685	610	560	50	4	522	12	20	40	M36*150	65.5
500	755	670	615	52	4	576	12	20	43	M39*150	82.3
600	890	795	735	58	5	686	12	20	49	M45*170	124.1

Flange Rubber Gasket-Half Face (IBC)



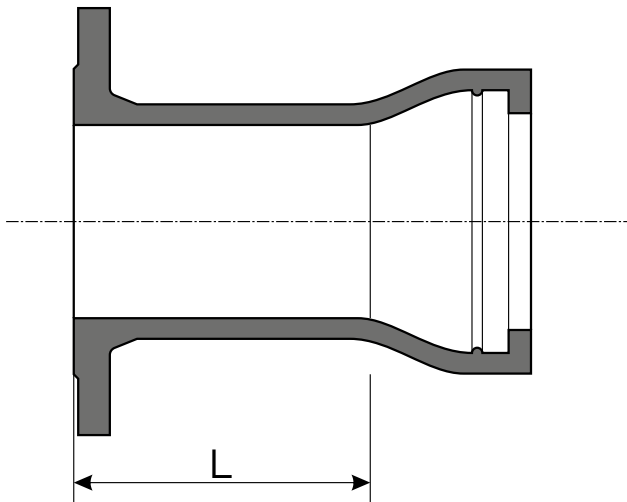
DN	D	d	H
	PN16		
80	132	80	3
100	156	100	3
150	211	150	3
200	266	200	3
250	319	250	3
300	370	300	4
350	429	350	4
400	480	400	4
450	548	450	4
500	609	500	4
600	720	600	5
700	794	700	5
800	901	800	5
900	1001	900	5
1000	1112	1000	5
1100	1218	1100	5
1200	1328	1200	5
1400	1542	1400	5
1600	1765	1620	5
1800	1965	1820	5
2000	2170	2020	5

Flange Rubber Gasket-Full Face for PN 16



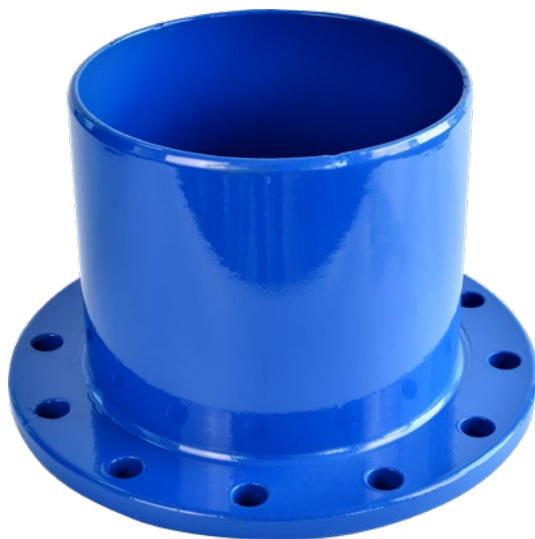
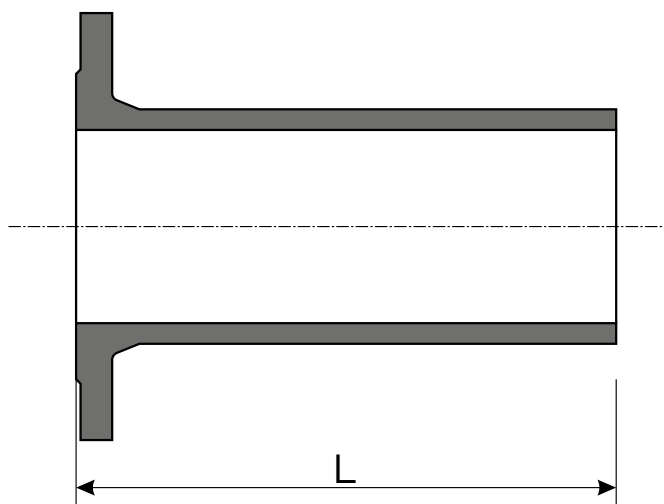
DN	D	d	k	d1	H
DN80	200	80	160	19	6
DN100	220	100	180	19	6
DN150	285	150	240	23	6
DN200	340	200	295	23	6
DN250	400	250	355	23	6
DN300	455	300	410	28	6
DN350	520	350	470	28	7
DN400	580	400	525	30	7
DN500	715	500	650	30	6
DN600	840	600	770	37	7
DN700	910	700	840	37	7
DN800	1025	800	950	40	7
DN900	1125	900	1050	41	7
DN1000	1255	1000	1170	43	7
DN1200	1485	1200	1390	51	7
DN1400	1685	1400	1590	51	7
DN1600	1930	1600	1820	58	7

Flange Socket



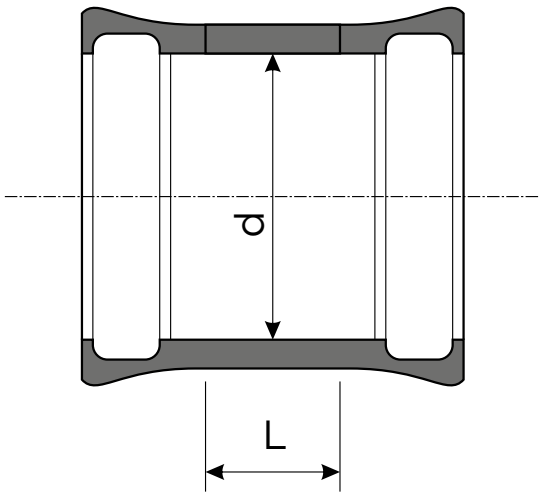
DN	L	T-type Mass (kg)			K-type Mass (kg)		
		PN10	PN16	PN25	PN10	PN16	PN25
80	130	7.4	7.4	7.4	9.6	9.6	9.6
100	130	9	9	9.5	11.4	11.4	12.4
150	135	14.2	14.2	15.2	16.7	16.7	17.7
200	140	20.5	20	22	22.7	22.2	24.2
250	145	28	27.5	31.5	29.4	28.9	32.9
300	150	37	36.5	42	42.4	41.9	47.4
350	155	45	48	56	50.4	53.4	61.2
400	160	55	60	71	60.2	65.2	76.2
450	165	66.5	76.5	87.5	70.6	80.6	91.9
500	170	78	93	104	80.9	85.9	94.9
600	180	108	135	149	106	133	147
700	190	144	159	216	161	176	211
800	200	189	208	287	206	225	274
900	210	235	258	356	257	281	341
1000	220	293	324	458	293	324	458
1200	240	456	521	664	456	521	664
1400	310	759	820	960	654	723	882
1600	330	1185	1278	1438	897	999	1176
1800	350	1308	1421	1638	1137	1263	1503
2000	370				1428	1581	1933

Flange Spigot



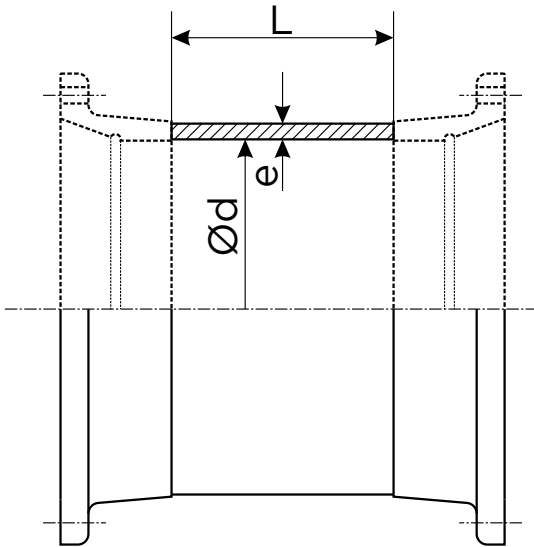
DN	L	Mass (kg)		
		PN10	PN16	PN25
80	350	7.8	7.8	7.8
100	360	9.6	9.6	10.2
150	380	15.6	15.6	16.6
200	400	22.5	22.5	24.5
250	420	32	31.5	35.5
300	440	43	42.5	47.5
350	460	52	55	64
400	480	64	70	81
450	500	79	88	103
500	520	94	109	121
600	560	133	159	173
700	600	179	194	228
800	600	226	245	294
900	600	272	295	356
1000	600	328	369	447
1200	600	456	520	620
1400	710	664	732	884
1600	780	922	1024	1202
1800	850	1196	1322	1562
2000	920	1534	1687	2040

Collar T-type & MJ-K-type (standard length)



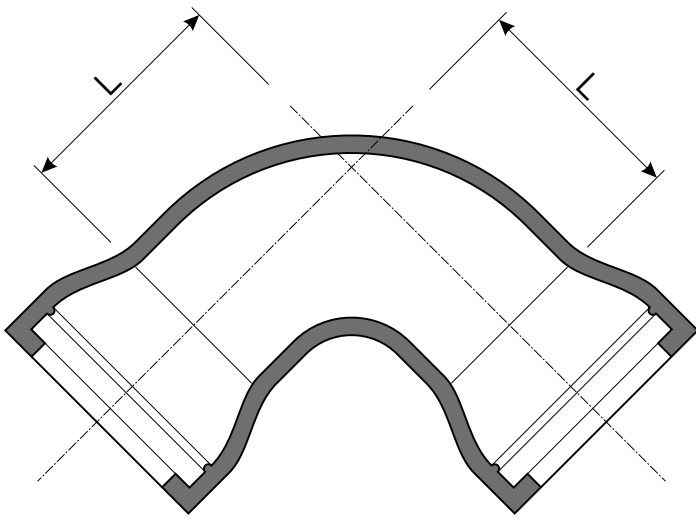
DN	d	L	Mass (kg)		K type include 2 glands
			T-type	K-type	
80	109	160	7.9	11.6	19.8
100	130	160	9.9	14.7	22.9
150	183	165	15.9	20.3	31.7
200	235	170	23	27.4	42.4
250	288	175	31.5	34.3	53.3
300	340	180	41	51.8	76.2
350	393	185	52	62.4	91.9
400	445	190	64	74.4	109
450	498	195	91	96.2	142
500	550	200	93	98.8	145
600	655	210	129	125	182
700	760	220	172	202	280
800	865	230	223	250	345
900	970	240	282	319	443
1000	1075	250	349	349	477
1200	1285	270	560	560	725
1400	1477	340	816	816	1024
1600	1683	360	1395	1094	1340
1800	1889	380	1822	1426	1750
2000	2095	400		1818	2210

Collar MJ-K-type (long type)



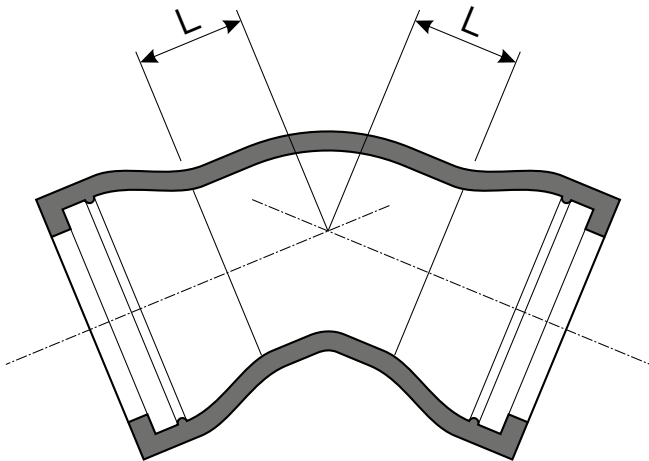
DN	d	L	Mass (kg)	K type include 2 glands
80	109	410	13.5	21.7
100	130	410	16.5	24.7
150	183	415	24.4	35.8
200	235	420	32.6	47.6
250	288	425	42.5	61.5
300	340	430	61.7	86.1
350	393	435	78.6	108
400	445	440	100.4	135
450	498	445	126.9	173
500	550	450	134.6	181
600	655	460	171.9	229
700	760	470	261.5	339
800	865	480	323.4	419
900	970	490	407.7	532
1000	1075	500	454.4	582
1200	1285	620	760.0	925
1400	1492	660	1076	1284
1600	1699	710	1421	1667
1800	1905	730	1828	2152
2000	2107	750	2301	2693

Double Socket Bend 90°



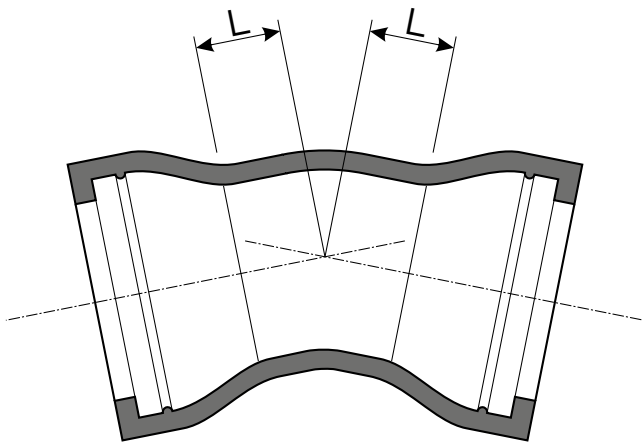
DN	L	Mass (kg)	
		T-type	K-type
80	100	8.6	11.1
100	120	11.4	16.2
150	170	20.5	25.5
200	220	33.0	37.4
250	270	48.5	51.3
300	320	68.0	78.8
350	370	98.4	109
400	420	129	139
450	470	163	172
500	520	204	210
600	620	303	300
700	720	436	428
800	820	595	572
900	920	793	778
1000	1020	1045	986
1200	1220	1624	1624
1400	1220	2419	2419
1600	1290	3444	3014
1800	1320	4283	3833

Double Socket Bend 45°



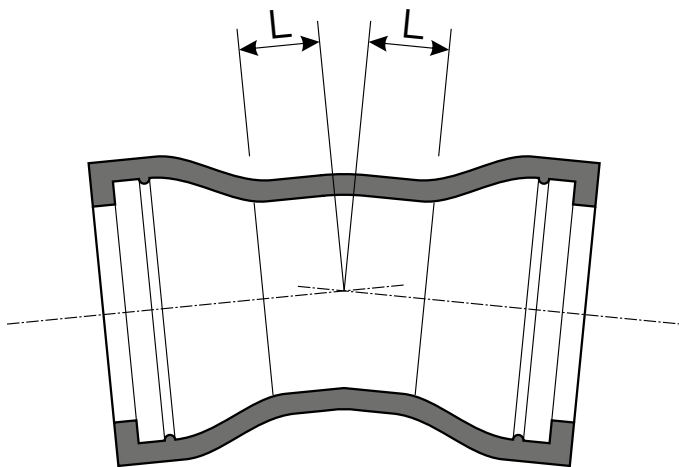
DN	L	Mass (kg)	
		T-type	K-type
80	55	7,7	10,3
100	65	10,1	14,9
150	85	17,4	22,5
200	110	27	31,4
250	130	38,5	41,3
300	150	53	63,8
350	170	70	80,4
400	195	89	99,4
450	220	123	132
500	240	129	145
600	285	202	198
700	330	282	302
800	370	378	395
900	415	496	539
1000	460	635	710
1200	550	986	1109
1400	515	1509	1273
1600	565	2117	1740
1800	610	2615	2296

Double Socket Bend 22.5°



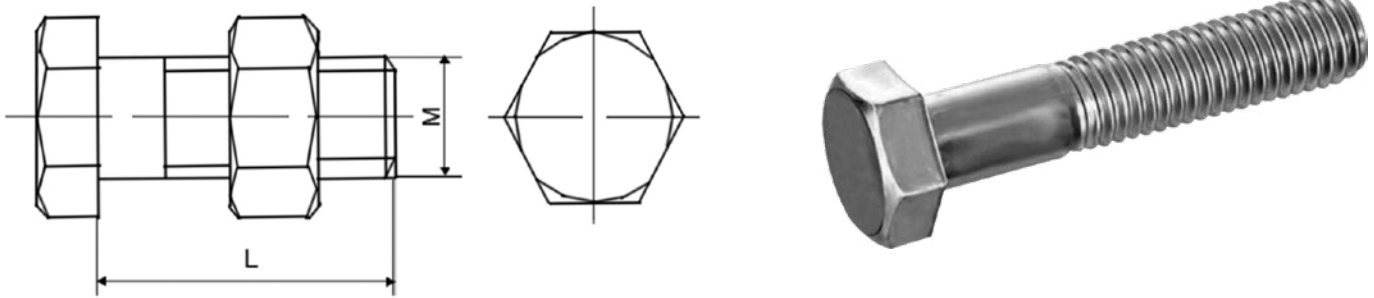
DN	L	Mass (kg)	
		T-type	K-type
80	40	7,3	9,9
100	40	9,3	14,1
150	55	15,9	21
200	65	24	28,4
250	75	33,5	36,3
300	85	44,5	55,3
350	95	58	68,4
400	110	74	84,4
450	120	102	110
500	130	111	117
600	150	157	154
700	175	248	240
800	195	331	308
900	220	432	417
1000	240	550	469
1200	285	851	689
1400	260	1241	857
1600	280	1628	1198
1800	305	2037	1588

Double Socket Bend 11.25°



DN	L	Mass (kg)	
		T-type	K-type
80	30	7,1	9,6
100	30	8,9	13,7
150	35	14,8	17,3
200	40	22	26,4
250	50	30,5	33,3
300	55	40,5	51,3
350	60	52	62,4
400	65	65	75,4
450	70	91,9	100
500	75	96	102
600	85	134	130
700	95	216	208
800	110	286	263
900	120	374	359
1000	130	473	473
1200	150	724	541
1400	130	1047	672
1600	140	1376	1007
1800	155	1704	1331

Hexagonal Bolts & Nuts for Flanges

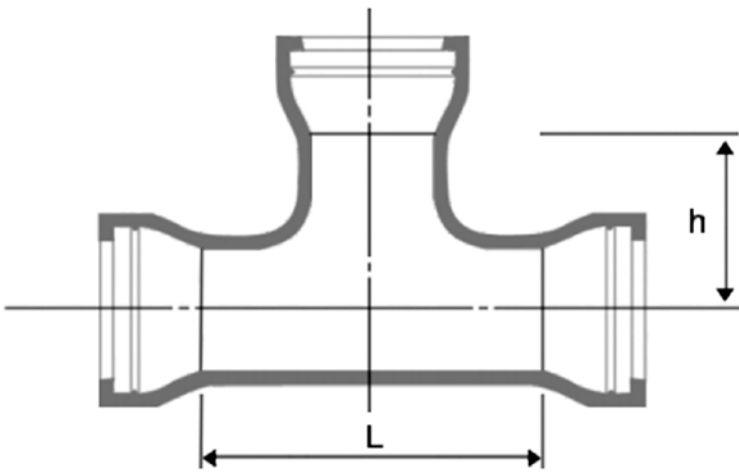


Material for bolts:
Carbon Steel Grade 4.8/8.8 or Stainless Steel 304/316/316L

Coating:
Zinc Electro-plating, Hot Dip Galvanized or Dacromet®

DN	PN10		PN16		PN25		PN40	
	n	MXL	n	MXL	n	MXL	n	MXL
80	8	M16X65	8	M16X65	8	M16x65	8	M16X65
100	8	M16X65	8	M16X65	8	M20X70	8	M20X70
125	8	M16X65	8	M16X65	8	M24X80	8	M24X80
150	8	M20X70	8	M20X70	8	M24X80	8	M24X90
200	8	M20X70	12	M20X70	12	M24X80	12	M27X100
250	12	M20X80	12	M24X90	12	M27X90	12	M30X110
300	12	M20X80	12	M24X90	16	M27X90	16	M30X120
350	16	M20X80	16	M24X90	16	M30X110	16	M33X130
400	16	M24X90	16	M27X100	16	M33X120	16	M36X140
450	20	M24X90	20	M27X100	20	M33X120	20	M36X150
500	20	M24X90	20	M30X110	20	M33X120	20	M39X150
600	20	M27X100	20	M33X120	20	M36X140	20	M45X170
700	24	M27X100	24	M33X120	24	M39X140	/	/
800	24	M30X110	24	M36X140	24	M45X160	/	/
900	28	M30X120	28	M36X140	28	M45X170	/	/
1000	28	M33X130	28	M39X150	28	M52X180	/	/
1200	32	M36X140	32	M45X170	32	M52X200	/	/
1400	36	M39X150	36	M45X180	36	M56X220	/	/
1500	36	M39X150	36	M52X190	36	M56X230	/	/
1600	40	M45X160	40	M52X190	40	M56X230	/	/
1800	44	M45X160	44	M52X200	44	M64X260	/	/
2000	48	M45X170	48	M56X220	48	M64X270	/	/
2200	52	M52X190	52	M56X230	/	/	/	/
2400	56	M52X200	56	M56X240	/	/	/	/
2600	60	M52X200	60	M56X250	/	/	/	/

All Socket Tee



Body DN	Branch dn	L	h	Mass (kg)	
				T-type	K-type
80	80	170	85	12.4	17.7
100	80	170	95	14.8	21.5
	100	190	95	16.1	23.2
150	80	170	120	21.5	29.2
	100	195	120	23.5	31
	150	255	125	28	35.6
200	80	175	145	30	37.9
	100	200	145	32	38.8
	150	255	150	37	44
	200	315	155	43	49.6
250	80	175	165	40	48.3
	100	200	165	42.7	47.9
	150	260	175	51.1	56.4
	200	315	180	55.9	60.9
	250	375	185	63.2	67.4
300	80	180	190	51.5	--
	100	200	195	54.2	67.4
	150	260	200	64.3	77.6
	200	320	205	69.9	82.9
	250	375	210	79.9	92.1
	300	435	215	86.2	102
350	80	180	215	63.6	--
	100	205	220	67.2	80
	150	265	225	79.6	92.6
	200	320	230	84.9	97.5

Body DN	Branch dn	L	h	Mass (kg)	
				T-type	K-type
350	250	380	235	96.9	109
	300	435	240	106	122
	350	495	245	116	131
400	80	185	240	76.1	--
	100	210	245	82.2	95
	150	265	240	96.7	110
	200	325	255	102	115
	250	380	260	116	128
	300	440	265	126	142
	350	500	270	137	152
	400	555	275	150	166
450	80	185	265	101	--
	100	210	270	106	116
	150	270	275	116	126
	200	325	280	127	137
	250	385	285	138	147
	300	445	290	149	163
	350	500	295	161	175
	400	560	300	173	186
	450	615	305	186	198
	500	80	190	290	110
100		215	295	115	123
150		270	300	137	145
200		330	305	141	149
250		390	310	161	168

All Socket Tee

Body DN	Branch dn	L	h	Mass (kg)	
				T-type	K-type
500	300	445	315	174	185
	350	505	320	187	198
	400	560	325	199	210
	450	620	330	214	224
	500	680	340	234	242
600	80	195	340	165	--
	100	220	345	169	168
	150	280	350	185	184
	200	335	355	188	187
	250	395	360	215	213
	300	450	365	231	233
	350	510	370	246	248
	400	570	375	258	260
	450	625	380	280	281
	500	685	390	296	296
700	80	205	395	217	207
	100	230	395	224	215
	150	285	400	241	232
	200	345	405	259	250
	250	400	410	277	267
	300	460	420	297	290
	350	520	425	317	310
	400	575	430	337	329
	450	635	435	361	350
	500	690	440	380	370
800	80	210	445	278	254
	100	235	445	287	264
	150	290	450	307	284
	200	350	455	330	305
	250	410	460	352	328
	300	465	470	374	353
	350	525	475	398	376
	400	580	480	420	398
	450	640	485	448	422
	500	700	490	472	447
900	80	215	495	349	322
	100	240	495	360	333
	150	300	500	386	359
	200	355	505	410	382
	250	415	510	437	408

Body DN	Branch dn	L	h	Mass (kg)	
				T-type	K-type
900	300	470	515	462	438
	350	530	525	490	464
	400	590	530	518	491
	450	645	535	547	518
	500	705	540	574	546
	600	820	550	635	602
	700	935	560	700	667
	800	1050	570	774	733
	900	1170	585	858	815
1000	80	225	545	433	434
	100	245	545	443	445
	150	305	550	474	475
	200	360	555	502	503
	250	420	560	533	533
	300	480	570	564	568
	350	535	575	594	597
	400	595	580	626	628
	450	650	585	659	658
	500	710	590	690	690
1200	80	235	645	631	632
	100	260	645	648	649
	150	315	650	685	686
	200	375	655	725	726
	250	430	660	766	766
	300	490	670	816	819
	350	550	675	845	849
	400	605	680	884	886
	450	665	685	929	928
	500	720	690	966	966
1400	80	250	745	988,8	698
	100	270	745	1006	715,9
	150	330	750	1058	767,5
	200	385	755	1110	818,8
	250	445	760	1153	861,5
	300	500	770	1209	918,9

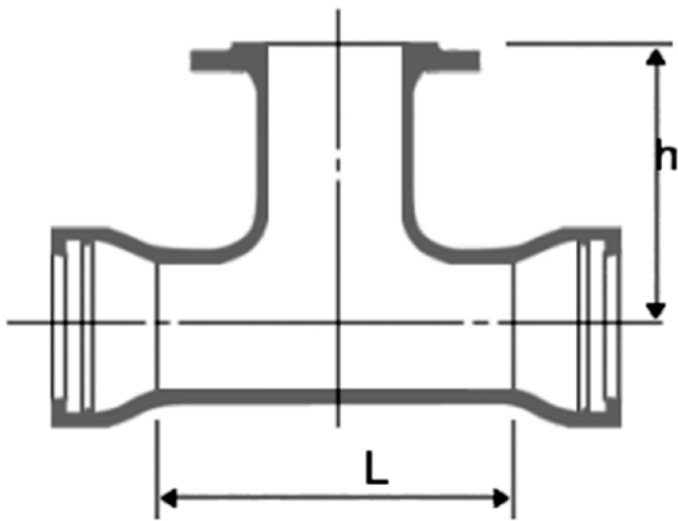
All Socket Tee

Body DN	Branch dn	L	h	Mass (kg)	
				T-type	K-type
1400	350	560	775	1257	969.1
	400	620	780	1307	1021
	450	675	785	1357	1074
	500	735	790	1402	1117
	600	850	800	1507	1221
	700	965	810	1627	1330
	800	1080	825	1737	1431
	900	1200	835	1861	1550
	1000	1315	845	1984	1670
	1200	1545	865	2279	1930
	1400	1780	890	2648	2210
	1600	80	260	845	
100		280	845		1054
150		340	850		1119
200		400	855	1551	1122
250		455	860	1616	1186
300		515	870	1674	1246
350		570	875		1371
400		630	880	1797	1373
450		690	885		1500
500		745	890	1946	1523
600		860	900	2044	1620
700		980	910		1819
800		1095	925	2318	1875
900		1210	935		2086
1000		1325	945	2618	2167
1200		1560	965	2942	2456
1400		1790	990	3341	2764
1600		2020	1010	3800	3155
1800	80	270	945		1340
	100	295	945		1373
	150	350	950		1446
	200	410	955	1897	1449
	250	470	960	1980	1531
	300	525	970	2063	1680
	350	585	975		1759
	400	640	980	2208	1831
	450	700	985		1911
	500	760	990	2353	1989
	600	875	1000	2526	2139
	700	990	1010		2295
	800	1105	1025	2835	2373
	900	1220	1035		2612
	1000	1340	1045	3173	2703
	1200	1570	1065	3543	3037
1400	1800	1090	3983	3387	

Body DN	Branch dn	L	h	Mass (kg)	
				T-type	K-type
1800	1600	2035	1110	4473	3809
	1800	2265	1135	4958	4285
2000	80	280	1045	/	1710
	100	305	1045	/	1744
	150	365	1050	/	1838
	200	420	1055	/	1924
	250	480	1060	/	2020
	300	540	1070	/	2117
	350	600	1075	/	2204
	400	655	1080	/	2205
	450	710	1085	/	2386
	500	770	1090	/	2479
	600	885	1100	/	2660
	700	1000	1110	/	2845
	800	1120	1125	/	3035
	900	1235	1135	/	3226
	1000	1350	1145	/	3437
	1200	1580	1165	/	3846
	1400	1815	1190	/	4244
	1600	2045	1210	/	4695
1800	2280	1235	/	5218	
2000	2510	1255	/	5787	



Double Socket Tee with Flanged Branch



Body	Branch	L	h	Mass (kg)					
				T-type			K-type		
				PN10	PN16	PN25	PN10	PN16	PN25
DN	dn								
80	80	170	160	13.5	13.5	13.5		--	--
100	80	170	175	15.8	15.8	15.8	20	20	20
	100	190	180	17.2	17.2	17.7	22	22	22
150	80	170	205	23	23	23	28	28	28
	100	195	210	24.5	24.5	25	29.5	29.5	29.5
	150	255	220	29.5	29.5	30.5	34.5	34.5	34.5
200	80	175	235	31.5	31.5	31.5	36	36	36
	100	200	240	33.5	33.5	34	38	38	38
	150	255	250	39	39	40	43.4	43.4	43.4
	200	315	260	45.6	46	47.5	50	50.4	52
250	80	175	265	44	44	44	46.6	45.6	45.6
	100	200	270	43.5	43.5	44	46	46	46.5
	150	260	280	56.6	56.6	57.6	59	59	60
	200	315	290	57	57	59	60	60	62
	250	375	300	65	66	69	67.6	68.6	71.6
300	100	200	300	55	55	56	66	66	67
	150	260	310	68	68	69	79	79	80
	200	320	320	71	70	73	82	80	84
	250	375	330	83	81	85	94	91	96
	300	435	340	89	91	95	100	102	106
350	100	205	330	68	68	68	78	78	78
	150	265	340	82.3	81.3	82.3	93	93	93

Double Socket Tee with Flanged Branch

Body	Branch	L	h	Mass (kg)					
				T-type			K-type		
				PN10	PN16	PN25	PN10	PN16	PN25
350	200	320	350	86	86	88	96	96	98
	250	380	360	103	114	125	114	124	135
	300	435	370	111	118	129	122	128	139
	350	495	380	117	120	129	127	130	139
400	100	210	360	83	83	83	93	93	93
	150	265	370	98	98	98	108	108	108
	200	325	380	103	102	104	113	113	114
	250	380	390	119	118	122	127	128	132
	300	440	400	131	131	137	141	141	147
	350	500	410	143	146	153	153	156	163
450	100	210	390	107	107	108	115	115	116
	150	270	400	119	119	120	127	127	128
	200	325	410	130	129	132	138	138	140
	250	385	420	141	140	144	149	149	153
	300	445	430	154	154	160	162	162	168
	350	500	440	166	169	178	174	177	186
	400	560	450	179	185	196	188	193	204
	450	615	460	191	200	216	200	209	224
500	100	215	420	116	116	117	122	122	122
	150	270	430	137	137	139	145	145	145
	200	330	440	141	141	143	146	147	149
	250	390	450	165	165	149	172	171	177
	300	445	460	179	179	184	182	185	190
	350	505	470	193	195	203	198	201	210
	400	565	480	199	205	216	205	211	222
	450	620	490	220	228	244	226	235	250
600	100	220	480	171	171	171	167	167	168
	150	280	490	187	187	188	182	182	183
	200	340	500	189	189	191	185	185	188
	250	395	510	219	218	222	215	215	218
	300	450	520	235	235	240	231	231	236
	350	510	530	252	255	263	247	251	260
	400	570	540	258	263	274	254	259	270
	450	625	550	285	293	309	281	289	305
	500	685	560	304	309	331	301	305	327
	600	800	580	340	366	380	336	363	376
700	100	230	510	242	242	243	243	243	244
	150	285	515	246	246	247	246	246	247
	200	345	525	242	242	251	249	249	251
	300	460	540	300	300	306	301	301	307
	350	520	545	312	315	324	313	316	325
	400	575	555	320	325	344	329	334	345
	450	635	560	369	378	391	370	379	392

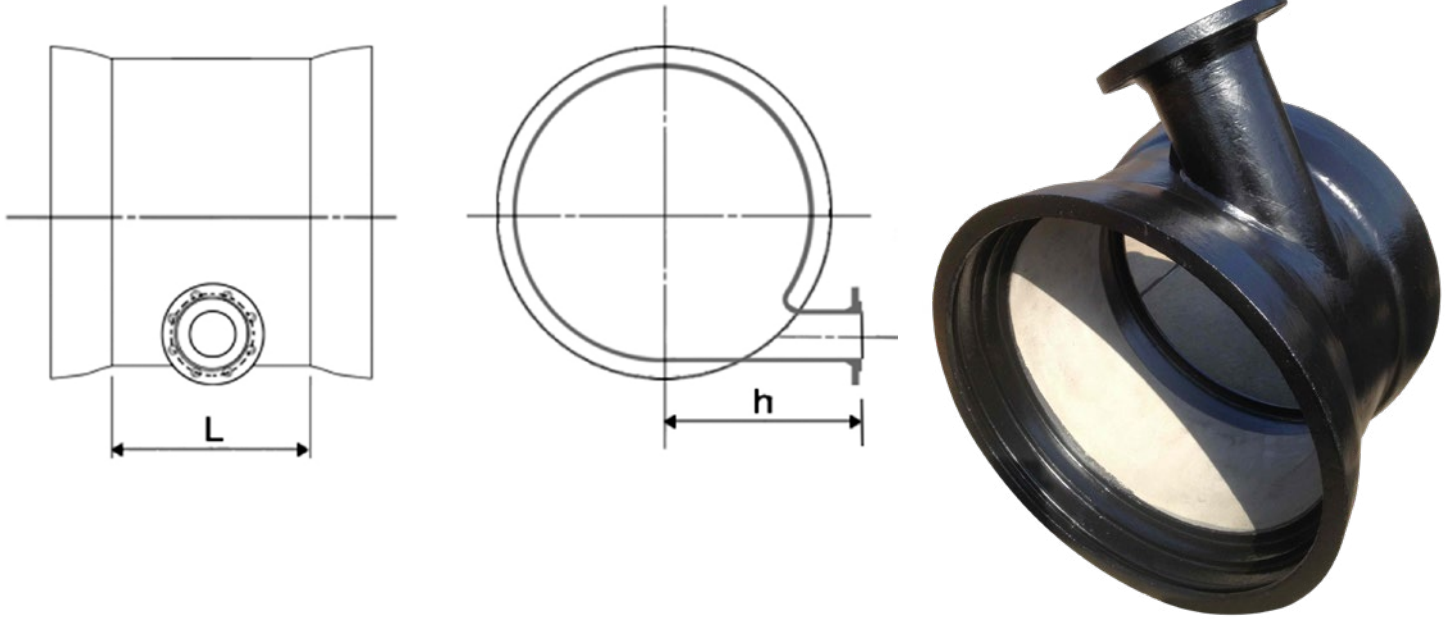
Double Socket Tee with Flanged Branch

Body	Branch	L	h	Mass (kg)					
				T-type			K-type		
				PN10	PN16	PN25	PN10	PN16	PN25
DN	dn								
700	500	690	570	391	406	418	392	407	419
	600	810	585	421	445	456	422	445	457
	700	925	600	460	475	525	476	488	525
800	100	235	570	304	304	305	295	295	295
	150	290	580	308	308	309	298	298	299
	200	350	585	306	306	313	302	301	303
	250	410	590	351	351	355	342	341	346
	300	465	600	371	371	377	362	362	368
	400	580	615	398	403	421	396	401	412
	500	700	630	522	537	549	513	528	540
	600	815	645	579	605	624	579	603	614
	700	930	660	620	635	669	611	626	660
900	100	240	630	378	378	378	365	365	366
	150	300	635	381	381	382	368	368	369
	200	355	645	379	379	386	371	371	373
	300	470	660	455	455	461	442	442	448
	400	590	675	490	495	513	484	488	499
	500	705	690	666	681	693	653	668	690
	600	820	705	748	774	784	745	769	783
	700	935	720	788	803	837	775	790	824
	800	1050	735	808	823	876	795	810	863
1000	100	245	690	461	461	462	461	461	462
	150	305	695	464	464	465	464	464	465
	200	360	705	462	462	469	467	467	469
	250	420	710	521	521	525	521	521	525
	300	480	720	552	552	558	552	552	558
	400	595	735	591	596	614	598	603	614
	500	710	750	852	867	879	852	867	879
	600	825	765	947	973	994	958	982	994
	700	940	780	985	1000	1032	985	1000	1032
	800	1060	795	1006	1021	1074	1006	1021	1074
	900	1175	810	1052	1076	1137	1052	1076	1137
1200	100	260	810	676	676	676	676	676	676
	200	375	825	682	682	684	682	682	684
	300	490	840	769	769	775	769	769	775
	400	605	855	852	856	867	852	856	867
	500	720	870	968	973	995	968	973	995
	600	840	885	1000	1027	1067	1031	1055	1067
	700	955	900	1169	1184	1218	1169	1184	1218
	800	1070	915	1190	1210	1295	1227	1242	1295
	900	1185	930	1367	1427	1452	1367	1427	1452
	1000	1300	945	1436	1470	1556	1436	1470	1556
	1200	1535	975	1682	1736	1846	1682	1736	1846

Double Socket Tee with Flanged Branch

Body	Branch	L	h	Mass (kg)					
				T-type			K-type		
				DN	dn	PN10	PN16	PN25	PN10
1400	100	450	905	1120	1120	1120	1120	1120	1120
	200	565	920	1240	1240	1242	948	948	950
	300	680	935	1338	1338	1343	1046	1046	1051
	400	800	950	1442	1449	1458	1150	1156	1166
	500	915	965	1540	1554	1564	1247	1262	1272
	600	1030	980	1681	1706	1718	1389	1414	1426
	800	1260	1010	1908	1926	1972	1616	1634	1680
	1000	1495	1040	2155	2193	2266	1863	1901	1973
	1200	1725	1070	2398	2457	2547	2106	2164	2255
	1400	1960	1100	2686	2747	2887	2394	2455	2595
1600	200	580	1030	1748	1748	1750	1318	1318	1320
	250	635	1040	1810	1809	1813	1380	1379	1383
	300	695	1045	1876	1876	1881	1446	1446	1451
	400	810	1060	2002	2008	2017	1572	1578	1587
	500	925	1075	2129	2143	2154	1699	1713	1724
	600	1040	1090	2260	2285	2297	1908	1934	1967
	800	1275	1120	2811	2829	2875	2381	2399	2445
	1000	1505	1150	2824	2862	2935	2480	2522	2594
	1200	1740	1180	3146	3205	3295	2799	2863	2954
	1400	1970	1210	3478	3539	3679	3048	3109	3249
1800	200	595	1150	2146	2146	2148	1697	1697	1699
	250	650	1150	2220	2220	2224	1771	1771	1774
	300	705	1155	2295	2294	2300	1846	1845	1850
	400	820	1170	2448	2454	2463	1998	2005	2014
	500	940	1185	2608	2623	2633	2159	2174	2184
	600	1055	1200	2766	2791	2803	2414	2440	2453
	800	1285	1230	3092	3109	3155	2748	2767	2813
	1000	1520	1260	3434	3472	3545	3095	3137	3210
	1200	1750	1290	3798	3856	3947	3460	3524	3614
	1400	1980	1320	4173	4233	4373	3723	3784	3924
	1600	2215	1350	4617	4710	4870	4168	4260	4421
	1800	2445	1380	5075	5188	5405	4626	4739	4956
2000	200	600	1250	/	/	/	2117	2117	2119
	250	660	1260	/	/	/	2214	2214	2218
	300	720	1270	/	/	/	2312	2311	2317
	400	835	1290	/	/	/	2496	2502	2511
	500	950	1305	/	/	/	2681	2695	2705
	600	1065	1310	/	/	/	2988	3015	3028
	800	1300	1340	/	/	/	3231	3248	3294
	1000	1530	1370	/	/	/	3790	3832	3904
	1200	1760	1400	/	/	/	4014	4072	4163
	1400	1995	1430	/	/	/	4645	4713	4852
	1600	2225	1460	/	/	/	4892	4984	5144
	1800	2460	1490	/	/	/	5367	5480	5697
2000	2690	1520	/	/	/	5999	6136	6458	

Double Socket Level Invert Tee

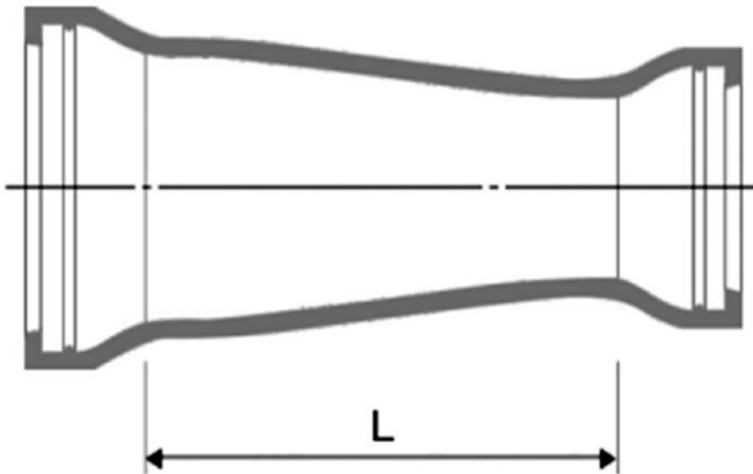


Body DN	Branch dn	L	h	T-type Mass (kg)			K-type Mass (kg)		
				PN10	PN16	PN25	PN10	PN16	PN25
200	100	200	240	36.5	36.5	37	41	41	41,5
	150	250	250	44	44	45	48.5	48.5	49,5
250	100	200	270	47.5	47.5	49	51.1	51.1	52.6
	150	255	280	62.6	62.6	63.5	66.2	66.2	67.1
	200	315	290	65	65	67	68.6	68.6	70.6
300	100	205	300	59	59	60.5	69.8	69.8	71.3
	150	260	310	74	74	75	74.8	74.8	75.8
	200	320	320	80	79	82	90.8	90.8	92.8
350	100	205	330	73	73	73	83.4	83.4	83.4
	150	265	340	91.5	91.5	92	102	102	102
	200	325	350	96	96	98	106	106	108
400	100	210	360	89	89	89	99.4	99.4	99.4
	150	265	370	101	101	102	111	111	112
	200	325	380	115	111	116	125	125	126
	250	380	390	134	133	138	144	144	148
450	100	210	400	114	114	114	121	121	121
	150	270	400	130	130	131	137	137	138
	200	325	410	142	142	144	149	149	151
	250	385	420	155	154	159	162	162	166
	300	445	430	174	174	180	181	181	187

Double Socket Level Invert Tee

Body DN	Branch dn	L	h	T-type Mass (kg)			K-type Mass (kg)		
				PN10	PN16	PN25	PN10	PN16	PN25
500	100	215	420	124	124	125	130	130	131
	150	274	430	149	150	151	155	156	157
	200	330	440	158	157	159	164	164	165
	250	390	450	182	181	185	188	188	191
	300	445	460	201	201	206	207	207	212
600	100	220	480	186	185	185	184	183	183
	150	280	490	199	199	200	197	197	198
	200	340	500	205	205	207	203	203	205
	250	395	510	239	238	243	237	236	241
	300	450	520	257	257	261	255	255	259
	350	510	530	283	289	295	281	287	293
	400	570	540	294	300	310	292	298	308
700	100	230	510	261	261	262	253	253	254
	150	285	515	265	265	266	255	255	256
	200	345	525	269	269	271	280	280	282
	300	460	540	324	324	330	320	319	326
800	100	235	570	328	328	329	308	308	309
	150	290	575	335	335	336	310	310	311
	200	350	585	336	336	338	335	335	337
	250	410	590	379	379	383	355	354	358
	300	465	630	401	401	407	380	379	385
900	150	300	635	409	409	410	382	382	383
	200	355	645	416	416	418	396	396	398
	300	470	660	491	491	497	460	459	465
	400	590	675	537	542	553	504	508	519
1000	100	145	690	449.9	449.8	450.4	407.9	407.8	408.4
	150	305	695	476.7	476.7	477.7	434.7	434.7	435.7
	200	360	705	504.4	504.4	506.2	462.4	462.4	462.2
	300	480	720	569.9	569.6	574.8	527.9	527.6	532.8
1200	200	375	825	738.1	738.1	739.9	626.1	626.1	627.9
	400	605	855	904.5	911.0	920.2	792.5	799.0	808.2
1400	200	565	920	1256	1256	1258	963.4	963.4	965.2
	400	800	950	1463	1470	1479	1171	1177	1187
	600	1030	980	1708	1733	1745	1415	1440	1453
1600	400	810	1060	2029	2036	2045	1599	1606	1615
1800	400	820	1170	2486	2492	2501	2037	2043	2052
2000	400	835	1280	/	/	/	2542	2548	2588
	600	1065	1310	/	/	/	2988	3015	3026

Double Socket Taper/Reducer

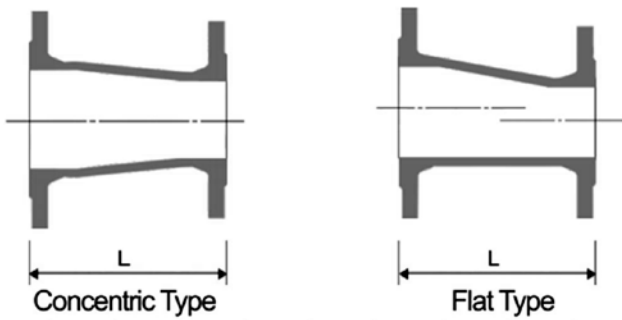


DN	dn	L	Mass (kg)	
			T-type	K-type
100	80	90	8.5	12.3
	150	190	13.5	17.5
200	80	290	20.5	23
	100	250	20.5	25.2
250	150	150	21	26
	80	390	28.5	31
	100	300	28.5	32.2
300	150	250	29	33.2
	200	150	29	33
	80	490	39	42.9
350	100	450	39	46.9
	150	350	39.5	46.9
	200	250	39.5	46.9
	250	150	38.5	45.7
400	80	600	51.5	57.9
	100	560	50	58.2
	150	460	52	60.1
	200	360	52	60.1
	250	260	51	62.1
	300	160	49.5	64.9
450	80	700	64	71.4
	100	660	65	72.3
	150	560	66.5	78.4
	200	460	67	78.3
	250	360	66	77.2
	300	260	64	80.1
	350	160	62	78
500	80	760	87.9	88.5
	100	760	87.9	94.2
	150	660	88.9	95.3
	200	560	88.9	95.3
	250	460	89.2	94.2
	300	360	88.1	97.1
	350	260	86	95
	400	160	83.1	92

DN	dn	L	Mass (kg)	
			T-type	K-type
500	80	900	101	109.8
	100	860	101	106
	150	760	102	114
	200	660	101	114
	250	560	101	113
	300	460	100	116
	350	360	98	115
	400	260	94	111
600	450	160	99.5	106
	80	1100	152	153
	100	1060	152	153
	150	960	153	159
	200	860	154	159
	250	760	153	158
	300	660	152	161
	350	560	151	159
700	400	460	142	156
	450	360	149	151
	500	260	131	145
	200	1080	215.9	212.9
	250	980	216.1	212.3
	300	880	218.5	216.3
	350	780	212.4	212.9
	400	680	206.7	208.5
800	450	580	199.6	204.1
	500	480	194	204
	600	280	178	187
	400	880	285	277.9
	450	780	277.7	273.5
	500	680	272.2	266.6
	600	480	252	257
	700	280	229	236

DN	dn	L	Mass (kg)	
			T-type	K-type
900	400	1080	387.4	366.6
	450	980	372.2	362.2
	500	880	366.8	355.4
	600	680	349.4	336.7
	700	480	318	327
1000	800	280	288	294
	600	880	476	445
	700	680	446.3	420.8
	800	480	392	403
1200	900	280	354	368
	600	1280	745	691.8
	700	1080	729.6	669.1
	800	880	710.7	636
	900	680	674.3	599.3
1400	1000	480	570	580
	600	960	844.4	704.6
	700	860	855.6	705
	800	760	859.5	700.2
	900	660	862.8	697.7
	1000	560	861.6	694.5
1600	1200	360	711	698
	800	960	1207	978.7
	900	860	1220	985.7
	1000	760	1211	974.1
	1200	560	1212	940.9
1800	1400	360	950	936
	1000	960	1547	1301
	1200	760	1549	1269
	1400	560	1581	1210
2000	1600	360	1605	1235
	1000	1160	/	1696
	1200	960	/	1663
	1400	760	/	1605
	1600	560	/	1560
	1800	360	/	1566

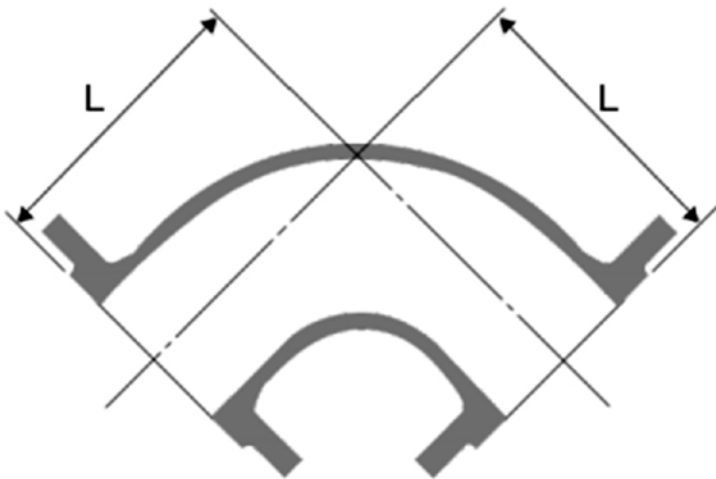
Double Flanged Taper/Reducer



DN	dn	L	Mass (kg)		
			PN10	PN16	PN25
100	80	200	9,3	9,3	9,8
150	80	400	16	16,1	17,1
	100	300	15	15	17,5
200	80	600	25,1	25,1	26,9
	100	600	27,3	27,5	25
250	100	600	33	32,6	36,8
	150	300	22	27,5	25
300	100	600	44	43,6	49,4
	150	600	46,4	46	52,6
	200	600	51,7	51	58,7
	250	300	40,5	39,5	49
350	100	750	52,5	55,2	63,7
	150	700	56	58,8	67,7
	200	600	58,1	60,5	70,9
	250	600	64,9	67	79,2
	300	300	49,5	52	66
400	100	800	62,9	69,4	79,1
	150	750	66,6	73,1	83,2
	200	600	65,7	71	84,4
	250	600	72	77	92,2
	300	600	78,8	84	101
	350	300	58	67	86
450	100	900	76,7	86,0	96,9
	150	800	77,4	86,7	98,0
	200	750	81,0	90,4	102,6
	250	600	79,5	87,5	96,9
	300	600	86,8	95	107
	350	600	92,7	104	118
500	400	300	72,4	81	113
	100	950	91,6	105,9	116,9
	150	900	95,8	110,2	121,6
	200	800	95,7	110,0	122,3
	250	700	99,4	114	130
	300	600	96,2	111	129
	350	600	103	121	141
	400	600	110	130	153
600	450	300	116	139	157
	100	1050	125,8	150,6	163,5
	150	1000	130,1	155,1	168,5
	250	900	139,5	164,1	180,2
	300	800	145	171	191
350	700	138	167	190	

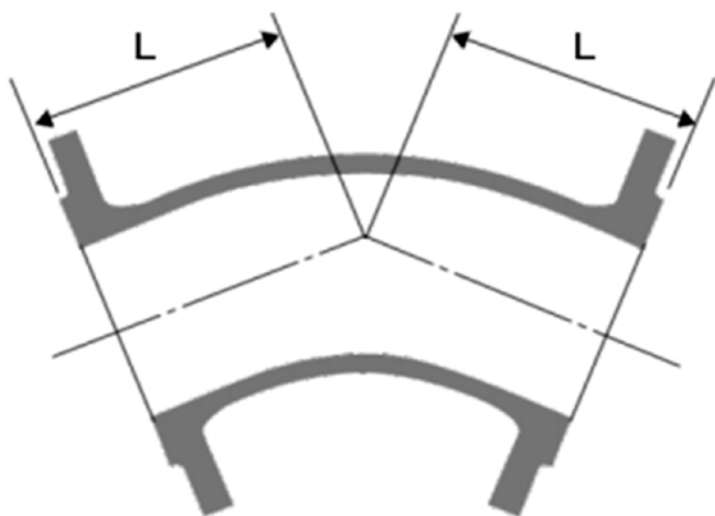
DN	dn	L	Mass (kg)		
			PN10	PN16	PN25
600	400	600	132	164	190
	450	600	140	175	195
	500	600	149	190	216
700	200	1100	181.1	195.3	229.6
	250	1050	186.8	200.6	236.7
	300	1100	192.4	206.2	243.9
	350	900	188.3	205.2	245.6
	400	800	183.5	204.1	245.8
	450	700	190	213	251
800	500	600	178	208	252
	600	600	195	243	288
	400	1030	260.8	285.0	340.2
	450	900	247.8	274.8	331.2
	500	800	255	285	347
	600	600	234	275	340
900	700	600	250	285	374
	400	1100	311.5	339.6	404.8
	450	1100	347	380	467
	500	1000	337	377	470
	600	800	315	366	462
	700	600	293	333	446
1000	800	600	308	352	468
	500	1200	452	501	585
	600	1000	427	487	574
	700	800	403	452	556
	800	600	369	418	540
1200	900	600	373	438	545
	600	1150	555.2	638.5	741.6
	700	1345	698	768	882
	800	1160	695	765	897
	900	975	628	708	871
	1000	790	586	692	881
1400	700	850	554.7	629.6	801.8
	800	950	665.7	744.2	929.9
	900	1100	786.5	868.9	1065
	1000	1000	788	886.5	1099
	1200	850	814	947	1223
	1000	1650	1354	1484	1717
1600	1200	1000	1055	1205	1456
	1400	910	1103	1273	1641
	1000	1760	1620	1770	2060
1800	1200	1710	1747	1899	2199
	1400	1340	1588	1760	2067

Double Flange Bend 90°



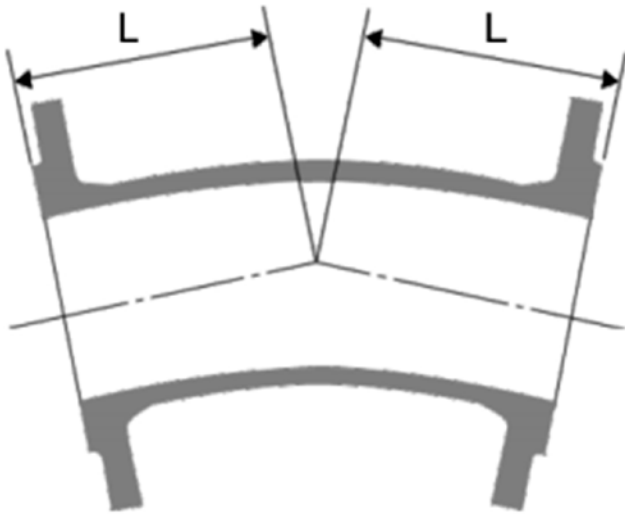
DN	L	Mass (kg)		
		PN10	PN16	PN25
80	165	9.6	9.6	9.6
100	180	11.9	11.9	12.9
150	220	20	20	22
200	260	31	30.5	34.5
250	350	50	49.5	57
300	400	70	70	81
350	450	90	96	113
400	500	116	127	149
450	550	143	160	190
500	600	181	211	235
600	700	272	325	353
700	800	386	416	473
800	900	533	572	653
900	1000	698	745	841
1000	1100	907	990	1163
1200	1300	1490	1619	1728
1400	1350	2199	2335	2640
1600	--	2663	2481	2778
1800	--	3348	3572	3980
2000	--	4307	4613	5065

Double Flange Bend 45°



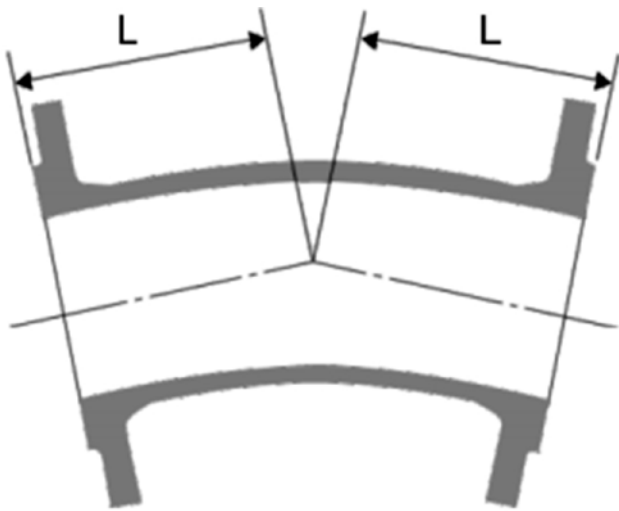
DN	L	Mass (kg)		
		PN10	PN16	PN25
80	130	9.3	9.3	9.3
100	140	11.3	11.3	12.4
150	160	18.5	18.5	20.5
200	180	27.5	27	31
250	350	55	54	62
300	400	78	77	88
350	298	76	83	89
400	324	96	107	129
450	349	116	132	158
500	375	145	175	198
600	426	212	266	294
700	478	296	326	388
800	529	403	442	528
900	581	519	567	669
1000	632	668	751	881
1200	750	1050	1178	1345
1400	775	1388	1524	1852
1600	845	1915	2119	2416
1800	910	2465	2717	3125
2000	980	3149	3455	3907

BS4772 Long Bend Double Flange Bend 22.5°



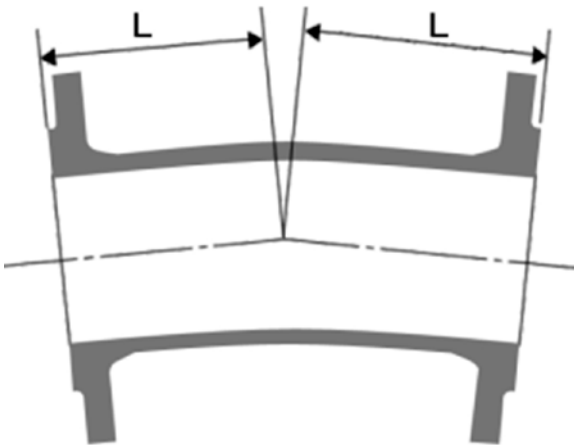
DN	L	Mass (kg)		
		PN10	PN16 9.2	PN25 9.2
80	130	9.2	9.2	9.2
100	140	11.5	11.5	12.5
150	160	18.6	18.6	20.6
200	180	27.4	27	31.2
250	350	55.3	54.5	58.4
300	400	78.3	77.5	88.7
350	298	76.8	83	100
400	324	96	107	130
450	349	118	135	166
500	375	146	176	200
600	426	214	267	296
700	478	252	342	--
800	529	288	448	--
900	581	361	588	--
1000	632	459	773	--
1200	735	717	1213	--
1400	835	1021	1635	--
1600	940	1190	2325	--
1800		1640	1864	--
2000		2081	2357	--

BS4772 Long Bend Double Flange Bend 11.25°



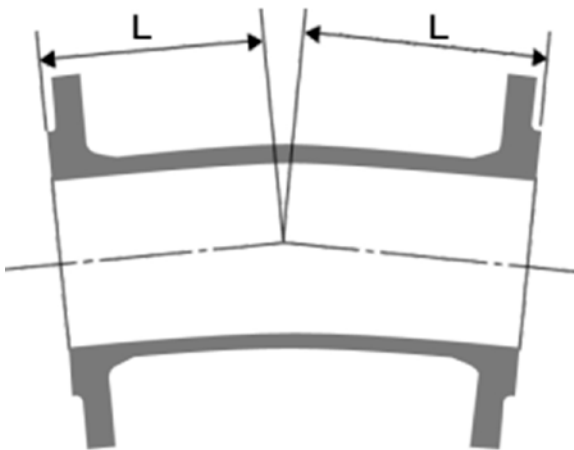
DN	L	Mass (kg)		
		PN10	PN16	PN25
80	130	9.2	9.2	9.2
100	140	11.5	11.5	12.5
150	160	18.6	18.6	20.6
200	180	27.9	27.5	31.7
250	350	55.8	55	58.9
300	400	78.8	78	89.2
350	298	77.3	83.5	100
400	324	96.8	108	131
450	349	118	135	166
500	375	147	177	201
600	426	215	268	297
700	478	240	343	--
800	529	270	451	--
900	581	303	592	--
1000	632	382	778	--
1200	735	590	1220	--
1400	835	827	1643	--
1600	940	1203	2338	--
1800		1342	1566	--
2000		1694	1970	--

EN545 Series A Double Flange Bend 22.5°



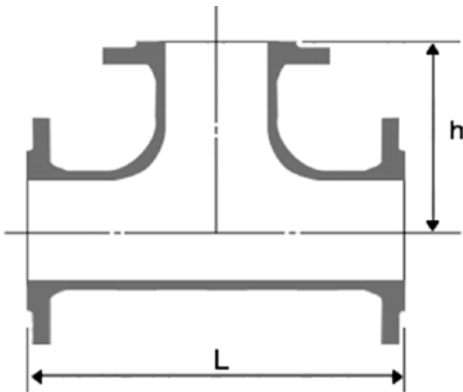
DN	L	Mass (kg)		
		PN10	PN16	PN25
80	80	9.2	9.2	9.2
100	85	11.5	11.5	12.6
150	100	18.6	18.6	20.8
200	110	27	27	31
250	125	37.9	37.1	46
300	140	51	50.3	63
350	155	61.1	67.9	87.2
400	165	74.8	90.7	113.1
450	180	87.3	110	135.4
500	190	107.8	142.9	168.3
600	220	154.7	215.7	246
700	300	216.5	250.9	330.2
800	330	294.9	330.3	422.3
900	360	373	416.2	528.2
1000	390	477.2	552.6	697.8
1200	450	736.6	853.2	1035
1400	460	1021	1157	1388
1600	470	1284	1468	1789
1800	480	1640	1864	2229
2000	520	2081	2357	2914

EN545 Series A Double Flange Bend 11.25°



DN	L	Mass (kg)		
		PN10	PN16	PN25
80	70	9.2	9.2	9.2
100	75	11.5	11.5	12.5
150	85	17.2	17.2	19.5
200	90	24.3	24.4	28.8
250	100	34.7	33.8	42.8
300	110	46.4	45.7	58.4
350	120	54.9	61.8	81
400	130	66.8	82.7	105.1
450	135	76.6	99.3	124.7
500	140	93.6	128.7	154.1
600	160	134.7	195.7	225.9
700	205	206.6	241	320.3
800	230	270	308	367.3
900	245	303	351	450.2
1000	265	382	465	607
1200	360	639.2	755.8	937.2
1400	380	873.8	995.4	1275
1600	400	1203	1382	1664
1800	410	1415	1641	2075
2000	415	1711	1985	2629

All Flange Tee



Body DN	Branch dn	L	h	Mass (kg)		
				PN10	PN16	PN25
80	80	330	165	15.6	15.6	15.6
100	80	360	175	18.4	18.4	19.5
	100	360	180	19.4	19.4	21
150	80	440	205	28.5	28.5	31
	100	440	210	29.5	29.5	32
	150	440	220	32.5	32.5	36
200	80	520	235	42	41.5	46
	100	520	240	43	42	47.5
	150	520	250	46	45	51
	200	520	260	49.5	49	56
	250	520	260	49.5	49	56
250	80	700	265	49.7	49.3	56.7
	100	700	275	68	67	75
	150	700	300	72	71	81
	200	700	325	76	75	85
	250	700	350	82	81	93
300	100	800	300	94	93	105
	150	800	325	98	97	109
	200	800	350	102	101	114
	250	800	375	109	108	121
	300	800	400	116	115	131
350	100	850	325	116	122	139
	150	850	325	119	125	142
	200	850	325	121	128	146
	250	850	325	128	134	154
	300	850	425	132	138	160
	350	850	425	142	151	176
400	100	900	350	143	154	177
	150	900	350	144	156	181
	200	900	350	148	159	184
	250	900	350	151	161	198
	300	900	450	160	184	213
	350	900	450	170	183	215
	400	900	450	174	191	225
450	100	950	375	176	193	225
	150	950	375	182	199	231
	200	950	375	190	207	240

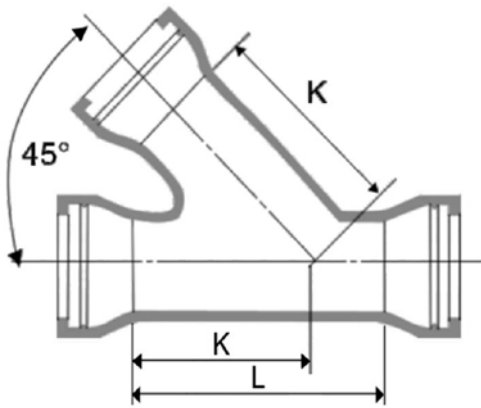
Body DN	Branch dn	L	h	Mass (kg)		
				PN10	PN16	PN25
450	250	950	375	199	216	250
	300	950	475	210	227	263
	350	950	475	219	240	279
	400	950	475	231	254	296
	450	950	46475	243	269	315
500	100	1000	400	210	241	265
	150	1000	400	214	243	269
	200	1000	400	215	245	271
	250	1000	400	218	258	280
	300	1000	500	227	255	287
	350	1000	500	239	276	298
	400	1000	500	242	276	311
	450	1000	500	249	298	327
	500	1000	599	252	297	332
	600	1000	599	252	297	332
600	100	1100	450	268	329	352
	150	1100	450	283	340	370
	200	1100	450	305	358	388
	250	1100	450	307	360	392
	300	1100	550	312	374	398
	350	1100	550	326	380	413
	400	1100	550	329	387	427
	450	1100	550	338	417	448
	500	1100	550	349	420	464
	600	1100	550	355	434	477
700	100	540	510	253	295	
	150	595	515	255	296	
	200	650	525	258	298	
	250	705	530	310	335	
	300	760	540	319	342	
	350	815	545	340	375	
	400	870	555	343	379	
	450	925	560	429	436	
	500	980	570	442	481	
	600	1090	585	476	523	
700	1200	600	477	523		

All Flange Tee

Body DN	Branch dn	L	h	Mass (kg)	
				PN10	PN16
800	100	580	570	345	383
	150	635	575	349	387
	200	690	585	352	390
	250	745	590	372	410
	300	800	600	423	427
	350	855	605	443	471
	400	910	615	441	484
	450	965	620	519	563
	500	1020	630	561	599
	600	1350	645	613	678
	700	1350	660	663	711
	800	1350	675	657	715
900	100	620	630	428	476
	150	675	635	432	480
	200	730	645	436	484
	250	785	650	499	533
	300	840	660	523	569
	350	895	665	538	588
	400	950	675	541	594
	450	1005	680	673	729
	500	1060	690	726	784
	600	1500	705	787	860
	700	1500	720	843	901
	800	1500	735	860	913
900	1500	750	853	924	
1000	100	660	690	524	572
	150	715	695	534	582
	200	770	705	546	629
	250	825	710	631	703
	300	880	720	651	739
	350	935	725	660	753
	400	990	735	668	755
	450	1045	740	850	911
	500	1100	750	955	1007
	600	1650	765	1007	1116
	700	1650	780	1067	1152
	800	1650	795	1085	1168
	900	1650	810	1095	1219
	1000	1650	825	1105	1229
1200	100	660	810	996	1082
	150	715	815	998	1084
	200	775	825	1000	1086
	250	830	830	1002	1094
	300	890	840	1004	1106
	350	950	845	1006	1113

Body DN	Branch dn	L	h	Mass (kg)		
				PN10	PN16	
1200	400	1005	855	1008	1122	
	500	1120	870	1109	1255	
	600	1240	885	1101	1256	
	700	1355	900	1279	1423	
	800	1470	915	1291	1439	
	900	1585	930	1427	1662	
	1000	1700	945	1494	1664	
	1200	1935	975	2201	2321	
	1400	100	970	905	1227	1363
		200	1085	920	1231	1367
400		1320	950	1514	1656	
600		1550	980	1655	1818	
800		1780	1010	1886	2041	
1000		2015	1040	2131	2309	
1200		2245	1070	2567	2767	
1400	2480	1100	2781	2985		
1600	100	1020	1015	1874	2078	
	200	1140	1030	1880	2084	
	400	1370	1060	2000	2210	
	600	1600	1090	2167	2398	
	800	1835	1120	2452	2675	
	1000	2065	1150	2740	2986	
	1200	2300	1180	3058	3327	
	1400	2530	1210	3498	3770	
	1600	2760	1240	3886	4192	
	1800	100	1075	1125	2346	2598
200		1190	1140	2350	2602	
400		1420	1170	2574	2835	
600		1655	1200	2694	2972	
800		1885	1230	3023	3299	
1000		2120	1260	3375	3669	
1200		2350	1290	3740	4056	
1400		2580	1320	4254	4574	
1600		2815	1350	4691	5147	
1800		3045	1380	5123	5501	
2000	100	1125	1235	2836	3142	
	200	1240	1250	2840	3146	
	400	1475	1280	3002	3314	
	600	1705	1310	3300	3642	
	800	1940	1340	3844	4459	
	1000	2170	1370	4112	4459	
	1400	2635	1430	4966	5340	
	1600	2865	1460	5625	6033	
	1800	3100	1490	6115	6547	
	2000	3330	1520	6648	7107	

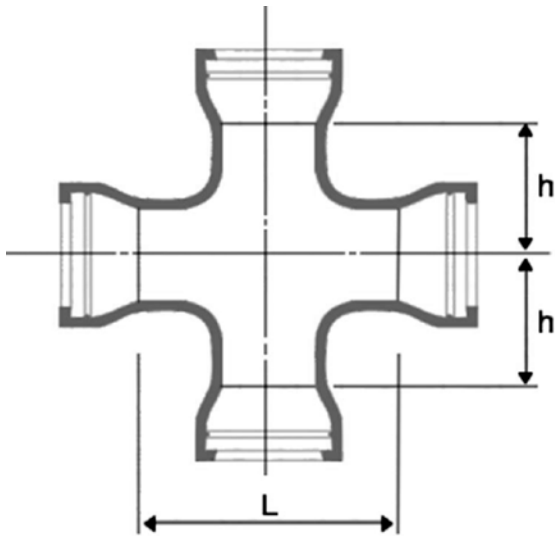
All Socket 45° Angle Branch



Body DN	Branch dn	L	K	H	Mass (kg)	
					T-type	K-type
80	80	290	215	215	21.4	21.4
100	80	290	225	230	25	25
	100	320	240	240	26.8	26.8
150	80	290	250	265	37.1	37.1
	100	320	265	275	39.4	39.4
	150	390	300	300	46	46
200	80	290	275	300	52.7	52.3
	100	320	290	310	55.3	54.9
	150	390	325	335	62.8	62.4
	200	460	360	360	71.5	70.9
250	80	290	300	335	72.5	71.7
	100	320	315	345	75.4	74.6
	150	390	350	370	83.8	83
	200	460	385	395	93.7	92.7
	250	530	420	420	104	103
300	80	290	325	370	96.3	96
	100	320	340	380	99.6	98.8
	150	390	375	405	109	108
	200	460	410	430	120	119
	250	530	445	455	132	131
350	300	600	480	480	145	144
	100	380	405	455	126	139
	150	450	440	480	136	149
	200	520	475	505	146	159
	250	690	510	530	158	170
	300	660	545	555	171	187
400	350	730	580	580	186	201
	100	380	430	490	159	172
	150	450	465	515	170	183
	200	520	500	540	182	195
	250	590	535	565	195	206
	300	660	570	590	209	225
	350	730	605	615	225	241
400	800	640	640	242	258	

Body DN	Branch dn	L	K	H	Mass (kg)	
					T-type	K-type
450	100	380	455	525	198	208
	150	450	490	550	210	221
	200	520	525	575	223	233
	250	590	560	600	237	247
	350	730	630	650	270	283
	400	800	665	675	288	301
500	450	870	700	700	307	320
	100	380	480	560	243	251
	150	450	515	585	256	264
	200	520	550	610	269	277
	250	590	585	635	286	293
	300	660	620	660	303	314
	350	730	655	685	321	332
	400	800	690	710	340	351
	450	870	725	735	361	371
	500	940	760	760	383	392
600	100	380	565	655	347	346
	150	450	600	680	364	363
	200	520	635	705	381	379
	250	590	670	730	399	379
	300	660	705	755	418	419
	350	730	740	780	439	440
	400	800	775	805	461	463
	450	870	810	830	485	486
	500	940	845	855	511	510
	600	1080	880	880	567	562
700	700	1220	1000	1000	950	935
800	800	1360	1120	1120	1769	1733
900	900	1500	1240	1240	1795	1753
1000	1000	1640	1360	1360	2310	2310
1200	1200	1780	1480	1480	3015	3015

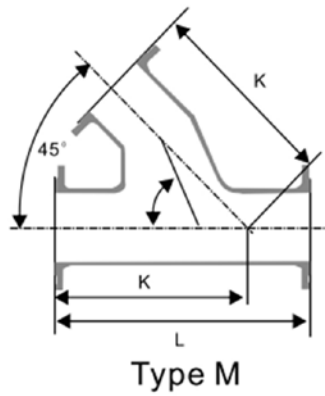
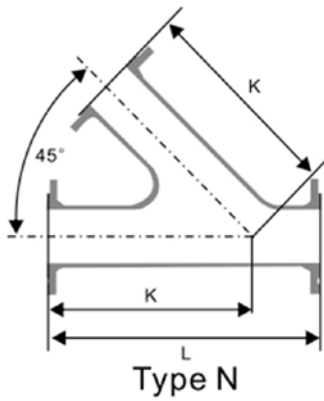
All Socket Cross



Body DN	Branch dn	L	H	Mass (kg)	
				T-type	K-type
100	100	190	95	19.8	29,3
150	100	195	120	26.6	36.4
	150	255	125	33.6	43.8
200	100	200	145	34.2	43.4
	150	255	150	41.7	51.2
	200	315	155	50.9	59.7
250	100	200	170	44.9	52.4
	150	260	175	57.9	65.8
	200	315	180	64.2	71.4
	250	375	185	75.1	80.7
300	100	205	195	55.7	71.2
	150	260	200	71.1	87
	200	320	205	77.6	92.8
	250	380	210	93.3	107
	300	435	220	101	123
350	200	325	230	91.7	107
	250	380	235	110	123
	300	440	245	123	144
	350	495	250	137	157
	400	200	325	255	108
250		385	260	130	143
300		440	270	142	163
350		500	275	157	178
400		560	280	177	198
500		250	390	310	174
	300	450	320	191	208
	350	505	325	207	223
	400	565	330	223	239
	500	680	340	272	284
600	300	455	370	249	256
	350	510	375	267	274

Body DN	Branch dn	L	H	Mass (kg)	
				T-type	K-type
600	400	570	380	278	284
	500	685	390	330	332
	600	800	400	399	392
700	350	520	425	413	410
	400	575	430	447	441
	500	690	440	520	510
	600	810	450	607	589
800	700	925	460	712	691
	400	580	480	548	527
	500	700	490	632	608
	600	815	500	725	692
900	700	930	510	831	796
	800	1045	525	963	914
	500	705	540	757	729
	600	802	550	859	823
	700	935	560	969	930
1000	800	1050	575	1105	1052
	900	1170	585	1262	1205
	600	825	600	1011	1003
	700	940	610	1130	1120
	800	1060	625	1276	1251
	900	1175	635	1432	1404
1200	1000	1290	645	1612	1612
	800	1070	725	1677	1652
	900	1185	735	1847	1818
	1000	1300	745	2034	2034
	1200	1535	765	2497	2497
1400	900	1200	835	2261	2232
	1000	1315	845	2468	2468
	1200	1545	865	2940	2940
	1400	1780	890	3446	3446

All Flange 45° Angle Branch Tee



DN	dn	Type	L	K	Mass PN16 (kg)
80	80	N	500	375	23
100	80	N	500	390	27
	100	N	540	405	30
150	80	N	590	480	41
	100	N	640	480	45
	150	N	640	480	52
200	80	N	635	535	55
	100	N	635	535	58
	150	N	735	560	71
	200	N	735	560	81
250	80	N	660	585	75
	100	N	710	610	82
	150	N	830	640	100
	200	N	830	640	112
	250	N	830	640	126
300	80	N	685	610	97
	100	N	685	610	100
	150	N	790	660	120
	200	N	865	685	140
	250	N	930	715	161
	300	N	930	715	177

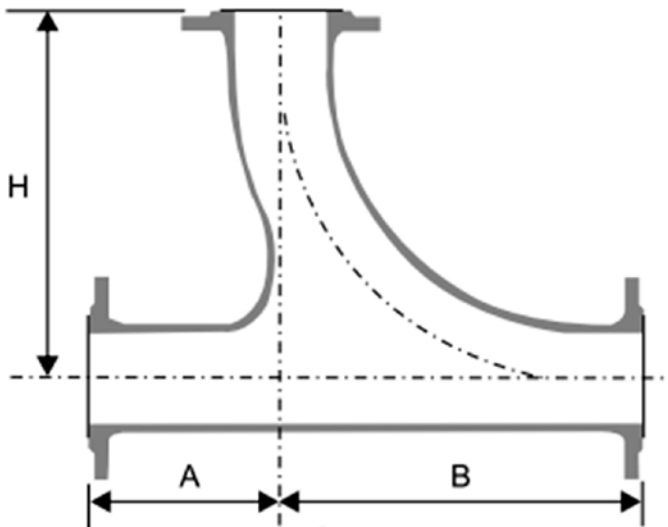
DN	dn	Type	L	K	Mass PN16 (kg)
350	100	N	685	635	124
	150	N	740	660	140
	200	N	840	710	165
	250	N	880	740	185
	300	M	880	790	207
	350	M	880	790	168
400	100	N	760	710	165
	150	N	815	740	180
	200	N	865	760	200
	250	N	970	820	230
	300	M	970	870	254
	350	M	970	870	283
450	400	M	970	870	310
	100	N	740	710	185
	150	N	840	760	211
	200	N	890	790	233
	250	N	990	820	272
	300	M	1040	900	298
	350	M	1060	950	338
400	M	1060	950	366	
450	M	1060	950	392	

All Flange 45° Angle Branch Tee

DN	dn	Type	L	K	Mass PN16 (kg)
500	150	N	790	765	245
	200	N	890	810	278
	250	N	940	840	304
	300	M	990	865	334
	350	M	1065	950	389
	400	M	1140	1025	439
	450	M	1140	1025	468
	500	M	1140	1025	505
600	150	N	890	840	354
	200	N	940	890	382
	250	N	990	915	413
	300	M	1090	965	460
	350	M	1160	1000	520
	400	M	1230	1035	568
	450	M	1295	1070	618
	500	M	1310	1180	680
700	200	N	1040	1015	547
	250	N	1070	1040	582
	300	N	1170	1090	649
	350	M	1240	1125	708
	400	M	1310	1160	772
	450	M	1370	1195	860
	500	M	1440	1240	945
	600	M	1570	1370	1133
800	250	N	1180	1150	760
	300	N	1200	1170	800
	350	N	1270	1205	867
	400	M	1340	1240	938
	450	M	1400	1270	1009
	500	M	1470	1305	1128
	600	M	1600	1370	1314
	700	M	1660	1450	1476
800	M	1720	1520	1674	

DN	dn	Type	L	K	Mass PN16 (kg)
900	300	N	1270	1245	980
	350	N	1340	1280	1056
	400	N	1410	1315	1136
	450	M	1350	1350	1218
	500	M	1560	1390	1322
	600	M	1730	1475	1590
	700	M	1780	1540	1757
	800	M	1830	1610	1964
	900	M	1880	1680	2194
1000	350	N	1415	1380	1320
	400	N	1485	1415	1408
	450	N	1550	1450	1500
	500	M	1680	1510	1647
	600	M	1800	1575	1915
	700	M	1930	1640	2144
	800	M	2060	1700	2410
	900	M	2180	1980	2812
	1000	M	2180	1980	3052
1100	400	N	1560	1515	1677
	450	N	1625	1550	1777
	500	M	1730	1600	1922
	600	M	1830	1650	2200
	700	M	1980	1790	2490
	800	M	2120	1930	2827
	900	M	2265	2065	3205
	1000	M	2265	2065	3452
	1100	M	2265	2065	3703
1200	450	N	1780	1700	2210
	500	N	1880	1750	2367
	600	M	1980	1855	2695
	700	M	2125	1920	2988
	800	M	2270	1990	3330
	900	M	2415	2060	3693
	1000	M	2480	2280	4136
	1100	M	2480	2280	4410
	1200	M	2480	2280	4728

All Flange Radial Tee



DN	dn	A	B	H	Mass PN16 (kg)
80	80	165	380	380	24
100	80	180	390	390	28
	100	180	400	400	31
150	80	220	395	415	40
	100	220	405	425	43
	150	220	450	450	52
200	80	220	400	440	53
	100	220	410	450	56
	150	260	455	475	67
	200	260	500	500	80
250	80	220	405	465	70
	100	220	415	475	74
	150	300	460	500	91
	200	300	505	525	104
	250	350	550	550	124
300	80	220	415	490	90
	100	300	425	500	101
	150	300	470	525	114
	200	400	515	550	137
	250	400	560	575	154
	300	400	600	600	174

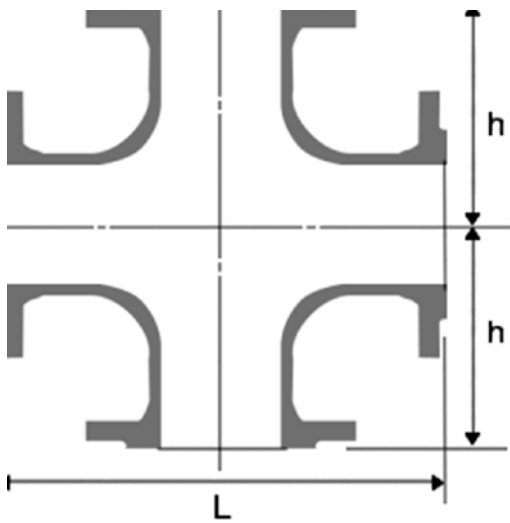
DN	dn	A	B	H	Mass PN16 (kg)
350	100	300	430	525	126
	150	300	475	550	140
	200	400	520	575	166
	250	400	565	600	185
	300	400	605	625	206
	350	450	650	650	235
400	100	300	435	550	160
	150	300	480	575	170
	200	400	525	600	200
	250	400	570	625	218
	300	450	610	650	246
	350	450	655	675	272
	400	500	700	700	307
450	100	300	440	575	185
	150	300	485	600	197
	200	400	530	625	230
	250	450	575	650	260
	300	450	615	675	282
	350	450	660	700	310
	400	550	705	725	355
	450	550	750	750	387

All Flange Radial Tee

DN	dn	A	B	H	Mass PN16 (kg)
500	150	300	495	625	241
	200	400	540	650	278
	250	450	585	675	310
	300	450	625	700	335
	350	450	670	725	364
	400	550	715	750	413
	450	650	760	775	446
	500	600	800	800	497
	150	330	505	675	330
	200	400	550	700	375
600	250	450	595	725	413
	300	450	635	750	441
	350	450	680	775	473
	400	550	725	800	532
700	450	600	770	825	580
	500	600	810	850	626
	600	700	900	900	748
	200	400	550	750	500
800	250	450	595	825	678
	300	450	635	850	719
	350	450	680	875	765
	400	550	725	900	861
	450	600	770	925	934
	500	600	810	950	995
	600	700	900	1000	1174
	700	800	1000	1050	1353
800	900	1100	1100	1565	

DN	dn	A	B	H	Mass PN16 (kg)
900	300	450	640	900	851
	350	450	685	925	907
	400	550	730	950	1013
	450	600	775	975	1101
	500	600	815	1000	1167
	600	700	905	1050	1366
	700	800	1005	1100	1568
	800	900	1105	1150	1802
	900	1000	1200	1200	2047
	1000	350	450	695	975
400		550	740	1000	1224
450		600	785	1025	1323
500		600	825	1050	1394
600		700	915	1100	1616
700		800	1015	1150	1841
800		900	1115	1200	2099
1100	900	1000	1210	1250	2369
	1000	1100	1300	1300	2676
	400	550	750	1050	1416
	450	600	795	1075	1528
	500	600	835	1100	1605
	600	700	925	1150	1851
	700	800	1025	1200	2101
	800	900	1125	1250	2385
	900	1000	1220	1300	2678
	1000	1100	1310	1350	3012
1200	1100	1200	1400	1100	3353
	450	600	805	1125	1793
	500	600	845	1150	1877
	600	700	935	1200	2148
	700	800	1035	1250	2425
	800	900	1135	1300	2736
	900	1000	1230	1350	3056
	1000	1100	1320	1400	3417
	1100	1200	1410	1450	3785
	1200	1300	1500	1500	4200

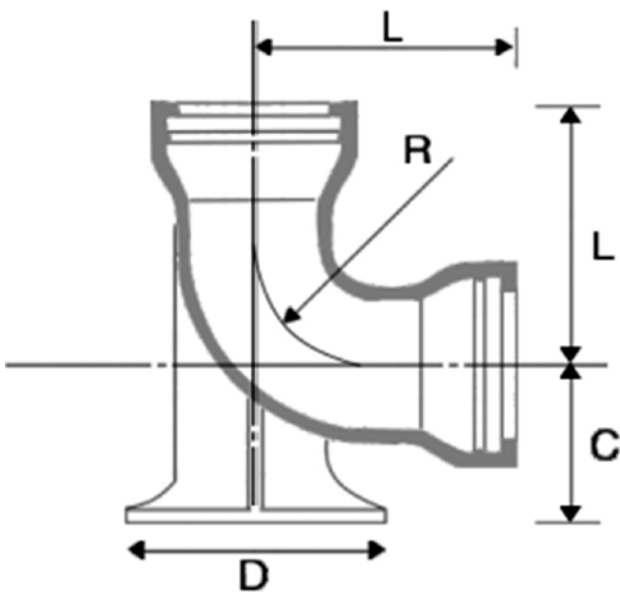
All Flange Cross



Body DN	Branch dn	L	h	Mass (kg)		
				PN10	PN16	PN25
80	80	330	165	20.1	20.1	20.1
100	80	360	175	23	23	24.2
	100	360	180	25	25	27.1
150	80	440	205	33.1	33.1	36.1
	100	440	210	35.1	35.1	38.1
	150	440	220	41.1	41.1	46.1
200	80	520	235	46.5	45.9	50.7
	100	520	240	48.5	46.9	53.7
	150	520	250	54.5	53.9	60.7
	200	520	260	61.5	60.9	70.7
250	80	700	265	37.5	37.5	44.5
	100	700	275	74.1	72.9	81.1
	150	700	300	82.1	80.9	93.1
	200	700	325	90.1	88.9	101
	250	700	350	102	101	117
300	100	800	300	100	98.8	112
	150	800	325	108	107	120
	200	800	350	116	115	130
	250	800	375	130	129	144
	300	800	400	144	143	164
350	100	850	325	122	128	145
	150	850	325	128	134	151
	200	850	325	132	140	159
	250	850	352	146	151	176
	300	850	425	154	160	187
	350	850	425	174	186	219
400	100	900	350	149	160	183
	150	900	350	151	164	191
	200	900	350	159	170	197
	250	900	350	160	174	225

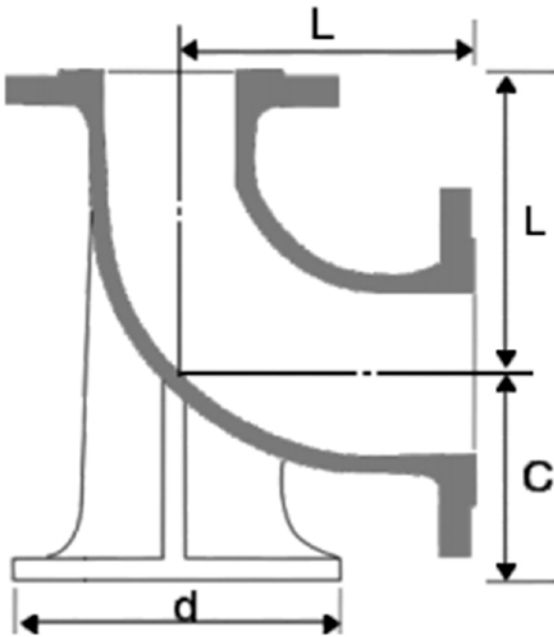
Body DN	Branch dn	L	h	Mass (kg)		
				PN10	PN16	PN25
400	300	900	450	182	220	236
	350	900	450	202	228	249
	400	900	450	211	234	259
450	100	950	375	186	203	235
	150	950	375	198	215	248
	200	950	375	213	230	265
	250	950	375	231	248	286
	300	950	475	253	270	312
	350	950	475	272	296	343
	400	950	475	296	324	378
	450	950	475	320	354	416
500	100	1000	400	215	247	272
	150	1000	400	223	251	280
	200	1000	400	225	255	284
	250	1000	400	231	281	301
	300	1000	500	249	275	316
	350	1000	500	273	290	338
	400	1000	500	279	317	364
	450	1000	500	293	361	396
	500	1000	500	299	359	406
	600	100	1100	450	242	311
150		1100	450	272	333	365
200		1100	450	316	369	401
250		1100	450	321	373	409
300		1100	550	330	400	420
350		1100	550	358	413	451
400		1100	550	364	427	479
450		1100	550	382	487	521
500		1100	550	403	494	553
600		1100	550	416	521	579

Double Socket 90° Duckfoot Bend



DN	L	C	D	Mass (kg)
				T-type
100	120	125	200	14.8
150	170	160	250	28.5
200	220	190	300	44.5
250	270	225	350	68.5
300	320	255	400	100
350	370	290	450	133
400	420	320	500	180
450	470	355	550	230
500	520	385	600	294
600	620	450	700	442
700	720	515	800	618
800	820	580	900	832
900	920	645	1000	1113
1000	1020	710	1100	1435
1200	1220	840	1300	2153

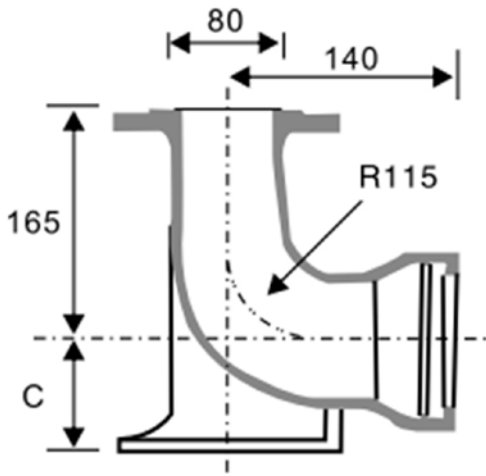
Double Flange 90° Duckfoot Bend



DN	L	C	d	Mass (kg)		
				PN10	PN16	PN25
100	180	125	200	17.8	17.8	18.8
150	220	160	250	30	30	32
200	260	190	300	46.5	46	50.5
250	350	225	350	75	75	82
300	400	255	400	106	105	116
350	450	290	450	139	145	162
400	500	320	500	178	189	212
450	550	355	550	229	249	275
500	600	385	600	283	313	337
600	700	450	700	428	481	509
700	800	515	800	700	741	811
800	900	580	900	846	884	982
900	1000	645	1000	1118	1165	1286
1000	1100	710	1100	1698	1781	1937
1200	1300	840	1300	2599	2709	

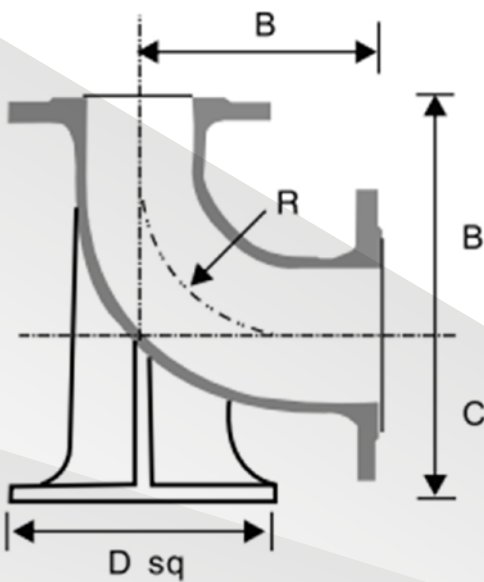
Flange & Socket 90° Duckfoot Bend

Short Hydrant Duckfoot Bends



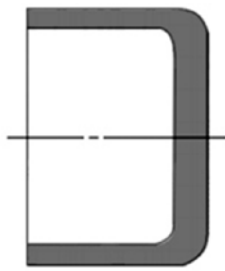
DN	C	Mass (kg)
80	95	12.5
100	105	15.9
150	130	21.5

Double Flanged 90° Hydrant Duckfoot Bend, Class K12



DN		B	C	D	Mass (kg)
Body	Branch				
80	80	165	110	180	14
100	80	180	125	200	17
150	80	220	160	200	28

Plug



DN ≤ 300



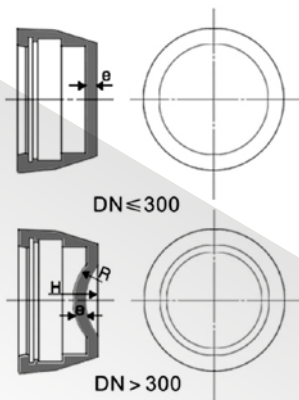
DN > 300



DN	Mass (kg)	
	T	K
100	4.5	5.7
150	9.5	8.8
200	14.8	13
250	21.5	17.6
300	33.5	25.2
350	45.5	32.7
400	56	42.9
450	68.5	52.5
500	81	63.6
600	112	88.7

DN	Mass (kg)	
	T	K
700	193	166
800	259	250
900	337	333
1000	437	434
1200	783	671
1400	1078	710
1600	1133	816
1800	1564	1123
2000		1515

Cap



DN ≤ 300

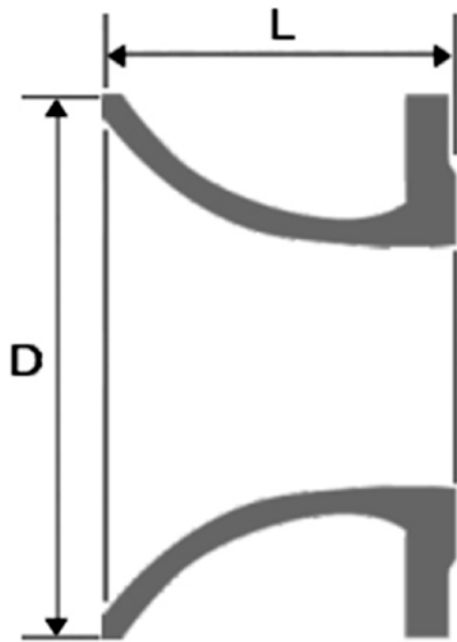
DN > 300



DN	Mass (kg)	
	T	K
100	8.5	8.5
150	14.1	12.3
200	19.8	18.4
250	27.4	22
300	42.8	34
350	61.7	47.3
400	76.3	56
450	93.7	70
500	107	83
600	132	138

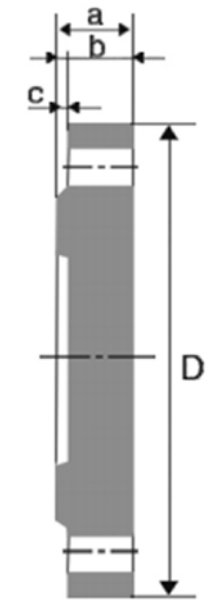
DN	Mass (kg)	
	T	K
700	202	170
800	275	225
900	353	300
1000	454	370
1200	613	580
1400	1018	1027
1600	1656	1441
1800	2165	1941
2000		2541

Bell Mouth

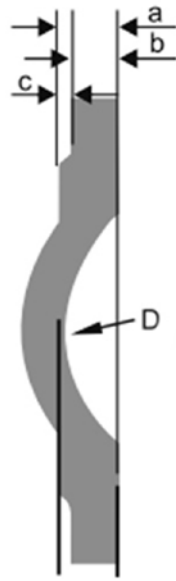


DN	L	D	Mass (kg)		
			PN10	PN16	PN25
80	135	160	5.2	5.2	5.2
100	140	185	6.2	6.2	6.7
150	155	245	10.1	10.1	11.1
200	170	310	15	148	16.8
250	190	370	21	20.5	24.5
300	210	435	28.5	28.5	33.5
350	225	495	35.5	38	46
400	245	560	45	49.5	60.5
450	260	620	54	62	73
500	280	685	67	80	91
600	300	810	96.5	120	132
700	340	945	135	146	178.5
800	380	1055	182	197	243
900	420	1165	231	250	306
1000	440	1290	297	331	404
1200	490	1515	457	512	603
1400	515	1725	646	702	842
1600	540	1945	906	995	1156
1800			1185	1297	1514
2000			1530	1668	1990

Blank Flange



DN50-DN250



≥DN300



PN 10

DN	D	a	b	C	Mass (kg)
80	200	19	16	3	3.5
100	220	19	16	3	4.3
150	285	19	16	3	7.2
200	340	20	17	3	11.0
250	400	22	19	3	16.9
300	455	24.5	20.5	4	24.0
350	505	24.5	20.5	4	29.5
400	565	24.5	20.5	4	36.5
450	615	25.5	21.5	4	46.5
500	670	26.5	22.5	4	56.0
600	780	30	25	5	85.0
700	895	32.5	27.5	5	123
800	1015	35	30	5	172
900	1115	37.5	32.5	5	224
1000	1230	40	35	5	293
1200	1455	45	40	5	575
1400	1675	46	41	5	739
1600	1915	49	44	5	1239
1800	2115	52	47	5	1717
2000	2325	55	50	5	2272

Blank Flange

PN 16

DN	D	a	b	C	Mass (kg)
80	200	19	16	3	3.5
100	220	19	16	3	4.3
150	285	19	16	3	7.2
200	340	20	17	3	10.8
250	400	22	19	3	16.6
300	455	24.5	20.5	4	23.5
350	520	26.5	22.5	4	33.5
400	580	28	24	4	44.5
450	640	30	26	4	63.5
500	715	31.5	27.5	4	77.0
600	840	36	31	5	121
700	910	39.5	34.5	5	156
800	1025	43	38	5	218
900	1125	46.5	41.5	5	286
1000	1255	50	45	5	387
1200	1485	57	52	5	662
1400	1685	60	55	5	994
1600	1930	65	60	5	1409
1800	2130	70	65	5	1858
2000	2345	75	70	5	2407

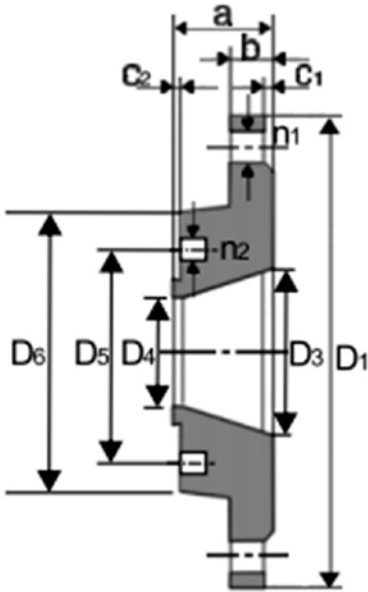
PN 25

DN	D	a	b	C	Mass (kg)
80	200	19	16	3	3.5
100	235	19	16	3	4.8
150	300	20	17	3	8.3
200	360	22	19	3	13.3
250	425	24.5	21.5	3	21.0
300	485	27.5	23.5	4	30.0
350	555	30	26	4	43.5
400	620	32	28	4	58.0
450	670	34.5	30.5	4	79.0
500	730	36.5	32.5	4	94.0
600	845	42	37	5	144

PN 40

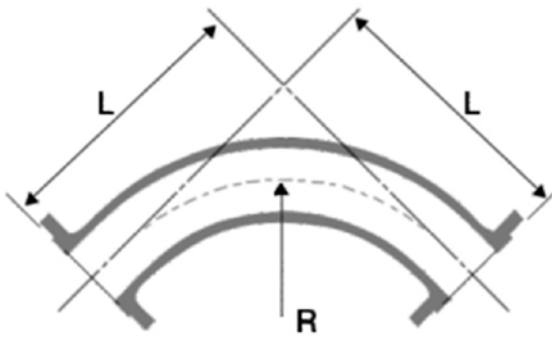
DN	D	a	b	C	Mass (kg)
80	200	19	16	19	3.7
100	235	19	16	19	5.1
150	300	26	23	26	11.4
200	375	30	27	30	20.5
250	450	34.5	31.5	34.5	34.5
300	515	39.5	35.5	39.5	51
350	580	44	40	44	74
400	660	48	44	48	106
450	685	50	46	50	118
500	755	52	48	52	150
600	845	58	53	58	232

Reducing Flange



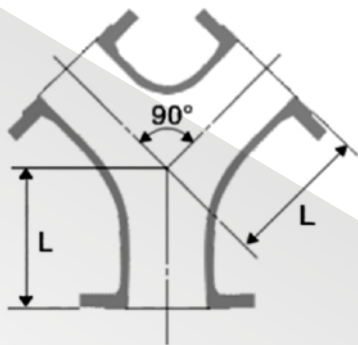
DN	dn	PN16											Mass (kg)
		D1	D2	D3	D4	D5	D6	n1	n2	Ød	M	a	
200	80	340	295	118	84	160	200	12	8	23	16	39	13.0
	100	340	295	144	104	180	220	12	8	23	16	39	13.0
250	100	400	355	148	104	180	220	12	8	28	16	41	18.6
	150	455	355	200	154	240	285	12	8	28	20	43	18.8
300	100	455	410	148	104	180	220	12	8	28	16	44	26.3
	150	455	410	200	154	240	285	12	8	28	20	44	25.9
	200	520	410	250	205	295	340	12	12	28	20	45	24.7
350	200	520	470	250	205	295	340	16	12	28	20	46	32.6
	250	520	470	303	254	355	400	16	12	28	24	48	36.5
400	100	580	525	148	104	180	220	16	8	31	16	47	46.0
	150	580	525	205	155	240	285	16	8	31	20	47	44.8
	200	580	525	270	205	295	340	16	12	31	20	48	42.4
	300	580	525	354	309	410	455	16	12	31	24	52	44.5
500	100	715	650	148	104	180	220	20	8	34	16	50	82.7
	150	715	650	203	155	240	285	20	8	34	20	50	81.3
	200	715	650	250	205	295	340	20	12	34	20	50	79.0
	300	715	650	354	309	400	455	20	12	34	24	56	74.7
	400	715	650	464	409	525	580	20	16	34	27	60	69.6
600	100	840	770	148	104	180	220	20	8	37	16	55	130.7
	200	840	770	250	205	295	340	20	12	37	20	56	126.6
	300	840	770	354	309	410	455	20	12	37	24	60	119.1
	400	840	770	464	409	525	580	20	16	37	27	64	112.6
800	100	1025	950	148	104	180	220	24	8	40	16	62	235.0
	150	1025	950	205	155	240	295	24	8	40	20	62	233.0
	200	1025	950	250	205	295	340	24	12	40	20	63	229.3
	300	1025	950	354	309	410	455	24	12	40	24	67	220.5
	400	1025	950	464	409	525	580	24	16	40	27	70	209.1
	450	1025	950	515	455	585	640	24	20	40	27	73	205.6
	500	1025	950	566	508	650	715	24	20	40	30	74	200.9
	600	1025	950	670	608	770	840	24	20	40	33	79	191.1

Double Flange 90° Long Radius Bend



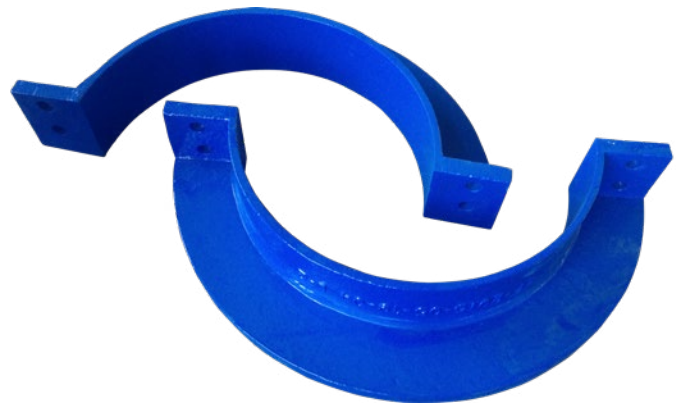
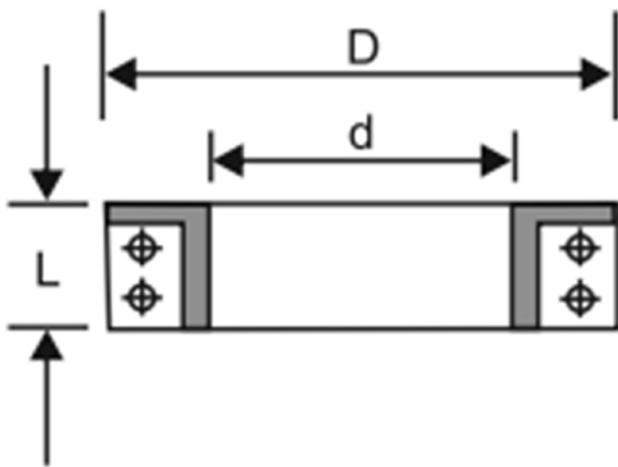
DN	L	R	Mass (kg)
80	380	330	14
100	400	340	18
150	450	385	30
200	500	430	46
250	550	475	65
300	600	515	90
350	650	560	121
400	700	605	157
450	750	650	197
500	800	690	252
600	900	780	379

All Flanged Y Pipe



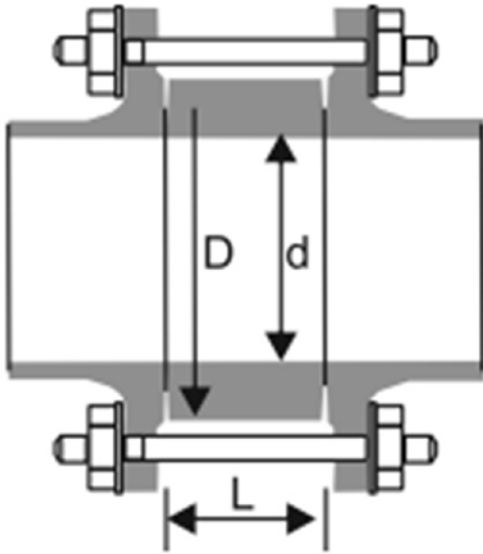
DN	L	Mass (kg)
80	165	15.6
100	180	19.3
150	220	32.5
200	260	49
250	350	81
300	400	115
350	450	166
400	500	231
450	550	295
500	600	385
600	700	591

Loose Puddle Flanges (for use on spun pipe only)



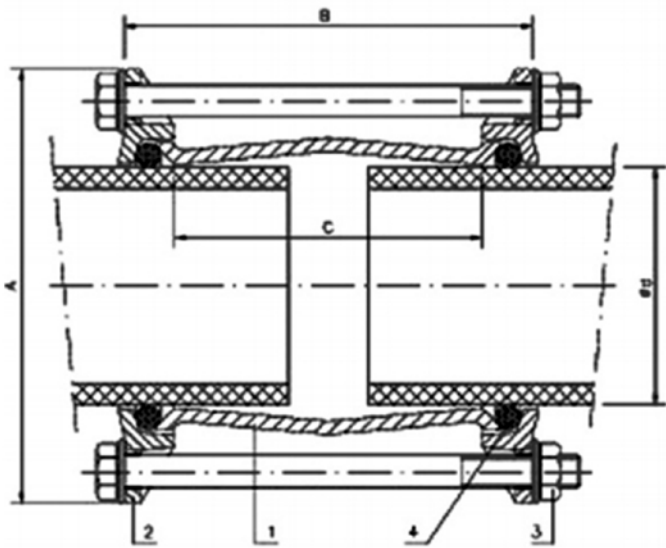
DN	D	L	d	Mass (kg)
80	260	110	100	11.5
100	305	110	120	14.5
150	390	130	172	23
200	430	130	224	28
250	490	130	276	37
300	555	130	329	46
350	610	130	381	50
400	660	150	432	62
450	725	150	483	73
500	790	150	535	85
600	900	165	638	120
700	1000	165	746	144
800	1100	185	850	189
900	1200	185	953	221
1000	1340	200	1056	342
1200	1570	225	1263	487
1400	1780	225	1470	634
1600	1996	225	1686	702

Pipe Blocks to Suit PN16 Flanges



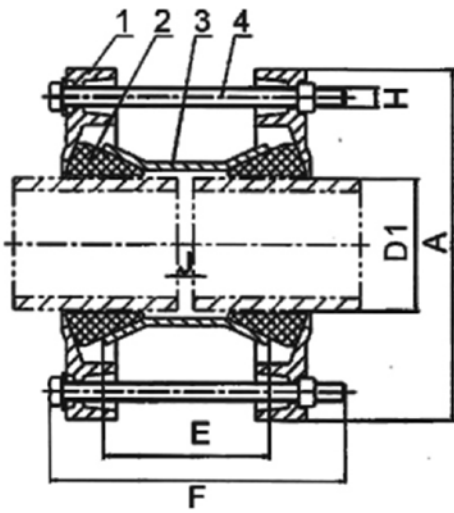
DN	d	D	L (Min)	L (Max)	Mass (kg)/m
80	76	133	15	105	6.6
100	100	153	15	120	7.4
150	150	209	15	130	11.8
200	200	264	15	140	16.5
250	250	319	20	155	22
300	300	367	20	170	25
350	350	432	20	180	35.5
400	400	484	20	195	41
450	450	544	20	205	52
500	500	606	20	220	65
600	600	721	30	245	89
700	704	791	30	245	75
800	802	898	30	245	94
900	897	998	30	250	109
1000	1003	1115	35	270	127
1200	1203	1328	35	310	175
1400	1404	1530	40	375	205
1600	1604	1750	40	375	271

Gibault Coupling for PVC pipe



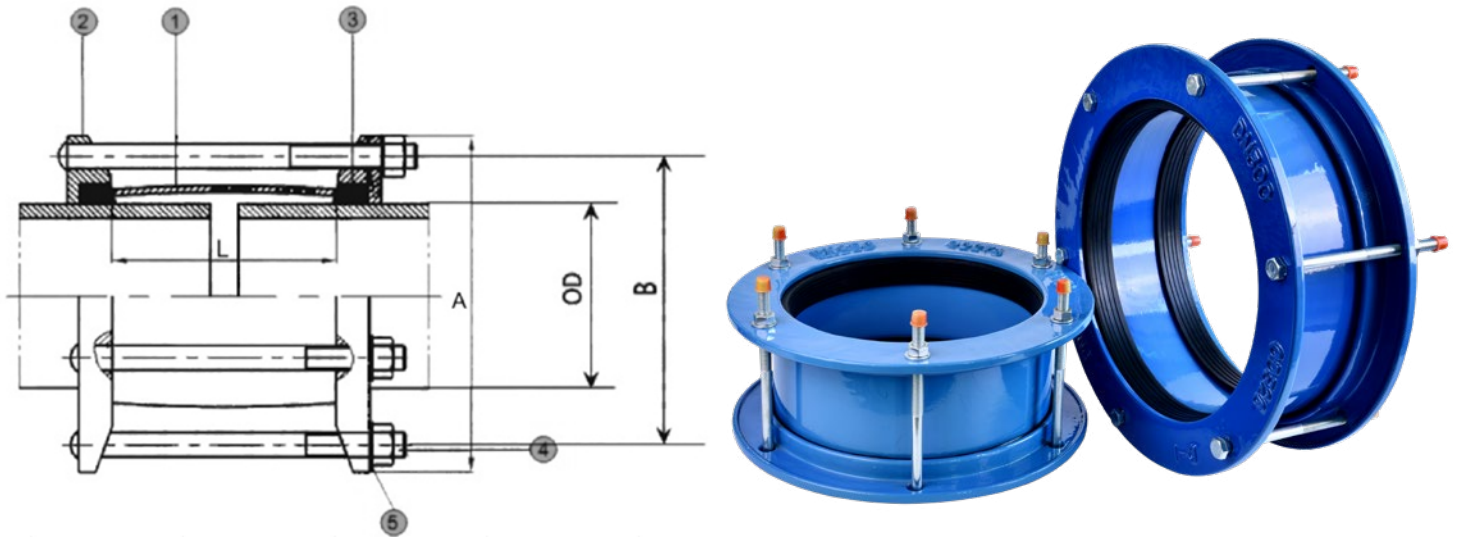
Ød	A	B	C
50	116	131	97
63	137	150	116
75	149	154	116
90	164	154	116
110	184	175	137
125	199	175	137
140	214	179	137
160	234	215	177
180	254	215	177
200	274	219	177
150	341	241	177
315	406	241	185
400	495	243	181
500	592	243	181
630	753	243	181

Universal Coupling

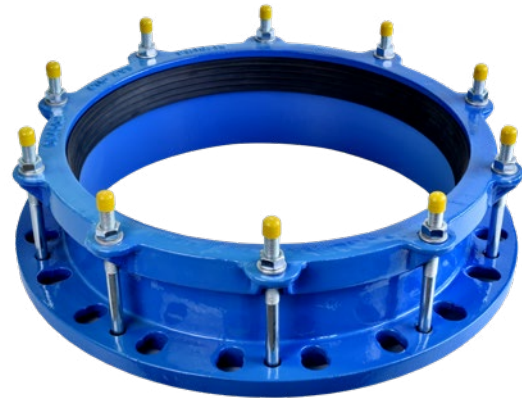
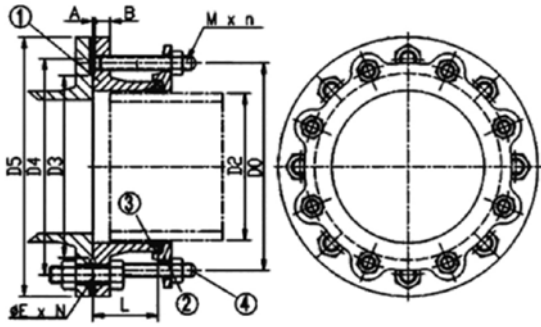


DI (Min)	DI (Max)	E	F	A	J (Min)	J (Max)	Mass (kg)
47	60	100	190	169	10	40	5
57	72	106	210	195	10	45	5.2
68	85	106	210	207	10	45	5.2
84	106	106	210	224	10	45	5.6
103	116	106	210	250	10	45	6.5
108	130	106	230	250	10	45	7
128	146	106	230	276	10	45	9
134	155	106	230	276	10	45	10
153	175	106	230	304	10	45	11
165	185	106	230	304	10	45	11
184	207	130	260	330	10	70	13
208	225	130	260	348	10	70	14
218	236	150	260	359	10	90	16
222	250	130	260	373	10	70	18
246	270	150	300	394	10	90	18.5
264	284	130	260	407	10	70	22
282	306	150	300	433	10	90	23
305	326	130	260	459	10	70	24.2
315	335	150	300	463	10	90	28
334	355	150	300	483	10	90	33
360	386	130	300	510	10	70	36
386	410	150	300	538	10	90	38
408	435	130	300	559	10	70	42
425	448	150	300	584	10	90	46
465	490	180	330	628	10	120	49

Flexible Coupling for Ductile Iron Pipe



DN	Pipe O.D	A	B	L	Bolts Nr.	Bolts Size (MxL)	Mass (kg)
80	98	194	157	102	4	M12x180	5.6
100	118	214	178	102	4	M12x180	6.5
150	170	270	236	102	4	M12x180	10.5
200	222	328	292	102	6	M12x180	14
250	274	376	341	102	6	M12x180	18.5
300	326	434	397	102	6	M12x180	20.6
350	378	498	460	152	6	M16x240	35.8
400	429	555	515	152	8	M16x240	41.6
450	480	616	580	152	8	M16x240	51
500	532	660	620	152	8	M16x240	55
600	635	755	715	152	8	M16x240	79
700	738	866	826	152	10	M16x240	94
800	842	965	925	152	10	M16x300	121
900	945	1075	1026	178	12	M16x300	163
1000	1048	1186	1140	178	12	M16x300	176
1100	1152	1300	1260	178	14	M16x300	230
1200	1255	1400	1353	178	14	M16x300	258
1400	1462	1616	1570	178	16	M20x300	378
1600	1668	1830	1780	178	18	M20x300	427

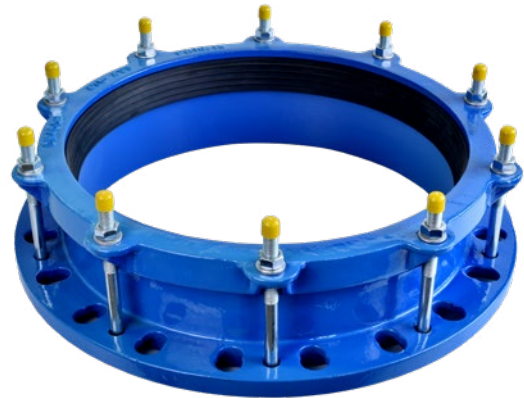
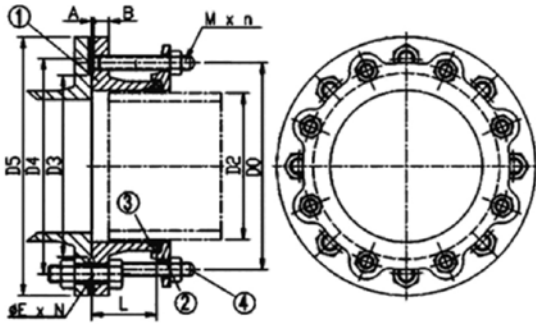


Flange Adaptor for Ductile Iron Pipe, PN 10

DN	D2	D3	D4	D5	DO	L	A	B	ØE	N	M	n
DN80	98	132	160	200	157	73	3	16.0	19	8	M12	4
DN100	118	156	180	220	178	73	3	16.0	19	8	M12	4
DN125	144	184	210	250	166	76	3	16.0	19	8	M12	4
DN150	170	211	240	285	236	77	3	16.0	23	8	M12	4
DN200	222	266	295	340	292	78	3	17.0	23	8	M12	4
DN250	274	319	350	410	341	92	3	19.0	23	12	M12	6
DN300	326	370	400	455	397	93	4	20.5	23	12	M16	6
DN350	378	429	460	505	460	111	4	20.5	23	16	M16	8
DN400	429	480	515	565	515	112	4	20.5	28	16	M16	8
DN450	480	530	565	615	580	113	4	21.5	28	20	M16	10
DN500	532	582	620	670	620	115	4	22.5	28	20	M16	10
DN600	635	682	725	780	715	115	5	25.0	31	20	M16	10
DN700	738	794	840	895	826	115	5	27.5	31	24	M16	12
DN800	842	901	950	1015	925	115	5	30.0	34	24	M16	12
DN900	945	1001	1050	1115	1026	115	5	32.5	34	28	M16	14
DN1000	1048	1112	1160	1230	1140	130	5	35.0	37	28	M16	14
DN1100	1152	1218	1270	1340	1260	130	5	37.5	37	32	M16	16
DN1200	1255	1328	1380	1455	1353	130	5	40.0	40	32	M16	16
DN1400	1462	1530	1590	1675	1570	130	5	41.0	43	36	M16	18
DN1500	1565	1640	1700	1785	1670	180	5	42.5	43	36	M16	18
DN1600	1668	1750	1820	1915	1790	180	5	44.0	49	40	M16	20

Flange Adaptor for Ductile Iron Pipe, PN 40

DN	D2	D3	D4	D5	DO	L	A	B	ØE	N	M	n
DN80	98	132	160	200	157	73	3	16.0	19	8	M12	4
DN100	118	156	190	235	178	73	3	16.0	23	8	M12	4
DN125	144	184	220	270	166	76	3	20.5	28	8	M12	4
DN150	170	211	250	300	236	77	3	23.0	28	8	M12	4
DN200	222	284	320	375	292	78	3	27.0	31	12	M12	6
DN250	274	345	385	450	341	92	3	31.5	34	12	M12	6
DN300	326	409	450	515	397	93	4	35.5	34	16	M12	8
DN350	378	465	510	580	460	111	4	44.0	37	16	M16	8
DN400	429	535	585	660	515	112	4	48.0	40	16	M16	8
DN500	532	615	670	755	620	115	4	52.0	43	20	M16	10
DN600	635	735	795	890	715	115	5	58.0	49	20	M16	10



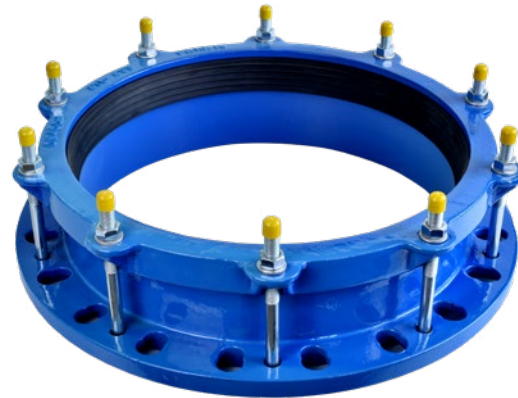
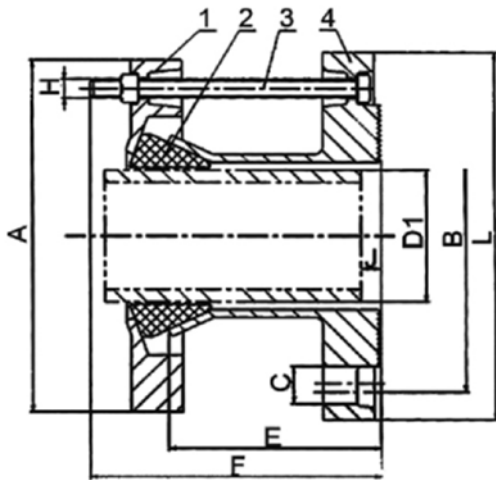
Flange Adaptor for Ductile Iron Pipe, PN 16

DN	D2	D3	D4	D5	D0	L	A	B	ØE	N	M	n	Mass (kg)
DN80	98	132	160	200	157	73	3	16.0	19	8	M12	4	7.3
DN100	118	156	180	220	178	73	3	16.0	19	8	M12	4	7.9
DN125	144	184	210	250	166	76	3	16.0	19	8	M12	4	12
DN150	170	211	240	285	236	77	3	16.0	23	8	M12	4	13.3
DN200	222	266	295	340	292	78	3	17.0	23	12	M12	6	18.4
DN250	274	319	355	400	341	92	3	19.0	28	12	M12	6	25.3
DN300	326	370	410	455	397	93	4	20.5	28	12	M12	6	30.5
DN350	378	432	470	520	460	111	4	22.2	28	16	M16	8	42.8
DN400	429	480	525	580	515	112	4	24.0	31	16	M16	8	56.4
DN450	480	548	585	640	580	113	4	26.0	31	20	M16	10	68
DN500	532	609	650	715	620	115	4	27.5	34	20	M16	10	77
DN600	635	720	770	840	715	115	5	31.0	37	20	M16	10	93
DN700	738	794	840	910	826	115	5	34.5	37	24	M16	12	121
DN800	842	901	950	1025	925	115	5	38.0	40	24	M16	12	138
DN900	945	1001	1050	1125	1026	115	5	41.5	40	28	M16	14	174
DN1000	1048	1112	1170	1255	1140	130	5	45.0	43	28	M16	14	202
DN1100	1152	1218	1270	1355	1260	130	5	48.5	43	32	M16	16	296
DN1200	1255	1328	1390	1485	1353	130	5	52.0	49	32	M16	16	378
DN1400	1462	1530	1590	1685	1570	130	5	55.0	49	36	M16	18	575
DN1600	1668	1750	1820	1930	1790	180	5	60	56	40	M16	20	855

Flange Adaptor for Ductile Iron Pipe, PN 25

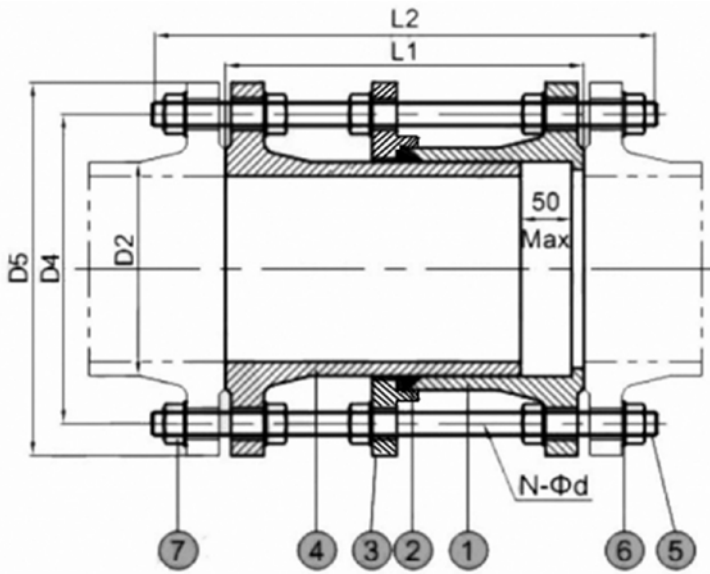
DN	D2	D3	D4	D5	D0	L	A	B	ØE	N	M	n	Mass (kg)
DN80	98	132	160	200	157	73	3	16.0	19	8	M12	4	7.3
DN100	118	156	190	235	178	73	3	16.0	23	8	M12	4	8.5
DN125	144	184	220	270	166	76	3	20.5	28	8	M12	4	14
DN150	170	211	250	300	236	77	3	23.0	28	8	M12	4	15
DN200	222	274	310	360	292	78	3	27.0	31	12	M12	6	22
DN250	274	330	370	425	341	92	3	31.5	34	12	M12	6	32
DN300	326	389	430	485	397	93	4	35.5	34	16	M12	8	38
DN350	378	448	490	555	460	111	4	44.0	37	16	M16	8	55
DN400	429	503	550	620	515	112	4	48.0	40	16	M16	8	73
DN500	532	609	660	730	620	115	4	52.0	43	20	M16	10	96
DN600	635	720	770	845	715	115	5	58.0	49	20	M16	10	118
DN700	738	820	875	960	826	115	5	41.5	43	24	M16	12	166
DN800	842	928	990	1085	925	115	5	46	49	24	M16	12	198
DN900	945	1028	1090	1180	1026	115	5	50.5	49	28	M16	14	248
DN1000	1048	1140	1210	1320	1140	130	5	55	56	28	M16	14	296
DN1200	1255	1350	1420	1530	1353	130	5	64	56	32	M16	16	488
DN1400	1462	1560	1640	1755	1570	130	5	69	62	36	M16	18	696
DN1600	1668	1780	1860	1975	1790	180	5	76	62	40	M16	20	/

Universal Flange Adaptor

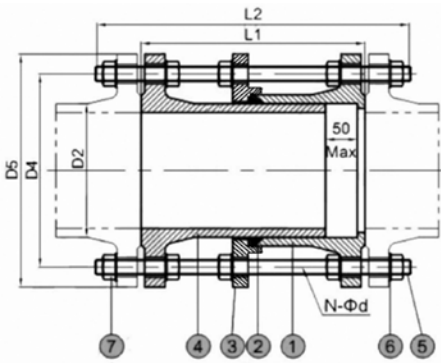


DN	DI (Min)	DI (Max)	L	A	B	C	E	F	A	J (Min)	J (Max)	Mass (kg)
40/50	47	60	155	16	100/125	19	75	140	169	10	45	7
50/65	57	72	194	19	114/147	19	85	140	195	10	55	7
65	68	85	207	19	125/160	19	85	140	207	15	55	8
80	84	106	224	19	146/190	19	85	140	224	10	55	8
100	103	116	250	21	178/216	19	85	140	250	10	55	9
100	108	130	250	21	178/216	19	85	150	250	10	55	9
125	128	146	286	21	210/242	22	85	150	276	10	55	13
125	134	155	286	21	210/242	22	85	150	276	10	55	13
50/175/200	153	175	340	21	237/298	23	85	150	304	10	55	15
150/175/200	165	185	340	21	237/298	23	85	150	304	10	55	16
200	184	207	342	21	290/301	23	100	170	330	10	70	19
200	208	225	348	21	295/301	23	100	170	348	10	70	19
200	218	236	348	23	295	23	100	170	359	15	70	21
200	222	250	370	23	295	23	100	170	373	28	70	21
250	246	270	406	22	350/364	27	110	170	394	10	80	26
250	264	284	406	22	350/364	27	100	170	407	10	70	26
250	282	306	435	22	355	26	111	190	433	28	80	27
300	305	326	482	24	400/434	27	100	170	459	10	70	32
300	345	335	482	24	400/434	27	110	170	463	10	80	32
300	334	355	482	24	405/440	27	185	260	483	83	155	39
300	360	386	498	24	404/440	27	185	260	510	83	155	41
350	360	386	533	24	460/479	27	100	190	510	10	70	43
400	386	410	596	24	515/542	30	100	190	559	10	80	58
400	408	435	596	24	515/542	30	100	190	559	10	70	60
400	425	458	596	24	515/542	30	110	190	584	10	80	62
400	465	500	630	24	525/570	30	185	300	628	83	155	71

Dismantling Joint PN 10 and PN 16



DN	Pipe OD	Length		PN10 Flange Drilling			Mass (kg)	PN16 Flange Drilling			Mass (kg)
		D2	L1	L2	D4	D5		N-Ød	D4	D5	
80	98	200	310	160	200	8-19	17	160	200	8-19	18
100	118	200	310	180	220	8-19	21	180	220	8-19	21
150	170	200	340	240	285	8-23	35	240	285	8-23	35
200	222	220	340	295	340	8-23	49	295	340	12-23	52
250	274	230	370	350	400	12-23	54	355	400	12-28	76
300	326	250	410	400	455	12-23	73	410	455	12-28	93
350	378	260	410	460	505	16-23	96	470	520	16-28	129
400	429	270	430	515	565	16-28	124	525	580	16-31	164
450	480	270	430	565	615	20-28	141	585	640	20-31	190
500	532	280	440	620	670	20-28	160	650	715	20-34	243
600	635	300	480	725	780	20-31	207	770	840	20-37	332
700	738	300	480	840	892	24-31	250	840	910	24-37	368
800	842	320	520	950	1015	24-34	354	950	1025	24-40	480
900	945	320	520	1050	1115	28-34	407	1050	1125	28-40	548
1000	1048	340	560	1160	1230	28-37	486	1170	1255	28-43	719
1100	1152	340	560	1270	1340	32-37	/	1270	1355	32-43	/
1200	1255	360	600	1380	1455	32-40	748	1390	1485	32-49	1110
1400	1462	380	630	1590	1675	36-43	1037	1590	1685	36-49	1350
1500	1565	400	665	1700	1785	36-43	/	1710	1820	36-56	1800
1600	1668	400	665	1820	1915	40-49	/	1820	1930	40-56	2010
1800	1875	420	700	2020	2115	44-49	/	2020	2130	44-56	2136
2000	2082	440	730	2230	2325	48-49	/	2230	2345	48-62	3285



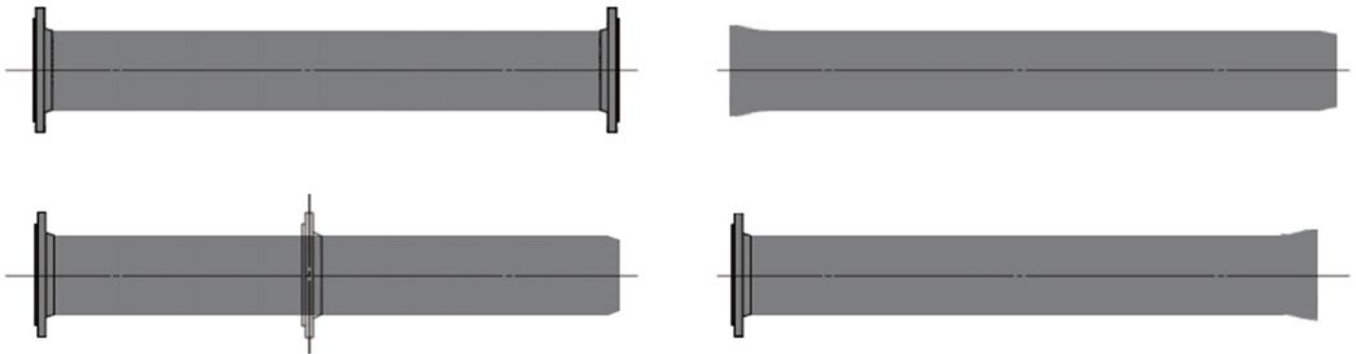
Dismantling Joint PN 25

DN	Pipe OD	Length		PN25 Flange Drilling			Mass (kg)
	D2	L1	L2	D4	D5	N-Ød	
80	98	210	330	160	200	8-19	22
100	118	220	340	190	235	8-23	32
150	170	230	370	250	300	8-28	52
200	222	230	370	310	360	12-28	76
250	274	250	410	370	425	12-31	104
300	326	250	410	430	485	16-31	134
350	378	270	440	490	555	16-34	196
400	429	280	480	550	620	16-37	248
450	480	280	480	600	670	20-37	281
500	532	300	480	660	730	20-37	327
600	635	300	520	770	845	20-40	436
700	738	320	560	875	960	24-43	573
800	842	320	600	990	1085	24-49	800
900	945	340	600	1090	1185	28-49	888
1000	1048	360	650	1210	1320	28-56	1272
1200	1255	360	720	1420	1530	32-56	1870
1400	1462	380	770	1640	1755	36-62	/
1600	1668	420	815	1860	1975	40-62	/
1800	1895	440	865	2070	2195	44-70	/
2000	2082	460	930	2300	2425	48-70	/

Dismantling Joint PN 40

DN	Pipe OD	Length		PN40 Flange Drilling		
	D2	L1	L2	D4	D5	N-Ød
80	98	210	330	160	200	8-19
100	118	220	340	190	235	8-23
150	170	230	370	250	300	8-28
200	222	230	410	320	375	12-31
250	274	250	440	385	450	12-34
300	326	250	440	450	515	16-34
350	378	270	480	510	580	16-37
400	429	280	520	585	660	16-40
500	532	300	560	670	755	20-43
600	635	300	600	795	890	20-49

Straight Pipe. Cast-on Flange



Nominal Dia.	Weight of Pipe Barrel		Cast-on Flange						Socket Weicht	K9 pipe
	K9 kg/m	K12 kg/m	PN10		PN16		PN25		T-type kg/socket	kg/6m
			kg/pc	kg/2pcs	kg/pc	kg/2pcs	kg/pc	kg/2pcs		
80	12.2	16	2.9	5.8	2.9	5.8	2.9	5.8	3.4	77
100	15.1	17.7	3.3	6.6	3.3	6.6	3.8	7.6	4.3	95
125	18.3	22.7	4.9	9.8	4.9	9.8	5.9	11.8	5.7	116
150	22.8	28	4.9	9.8	4.9	9.8	5.9	11.8	7.1	144
200	30.6	39.7	6.8	13.6	6.8	13.6	8.7	17.4	10.3	194
250	40.2	53	9.6	19.2	9.2	18.4	13.1	26.2	14.2	255
300	50.8	67.3	12.8	25.6	12.4	24.8	18	36	18.6	323
350	63.2	83.1	14.1	28.2	17.2	34.4	26	52	23.7	403
400	75.5	100	16.3	32.6	21.9	43.8	33	66	29.3	482
450	89.3	118	18.1	36.2	26.7	53.4	43	86	38.3	575
500	104.3	138	20.8	41.6	37.0	74.0	49	98	42.8	669
600	137.3	182	30.8	61.6	57.3	114.6	72	144	59.3	882
700	173.9	231	40.5	81.0	55.6	111.2	90.3	180.6	79.1	1123
800	215.2	286	54.8	109.6	74.0	148.0	123.2	246.4	102.6	1394
900	260.2	345	64.3	128.6	88.2	176.4	148.6	297.2	129.9	1691
1000	309.3	411	81.4	162.8	122.9	245.8	200.7	401.4	161.3	2017
1200	420.1	558	120.9	241.8	185.2	370.4	284.7	569.4	237.7	2753
1400	547.2	7268	147.8	295.6	215.9	431.8	368,1	738.2	385,8	3669
1600	690.3	916	206.4	412.8	308.4	616.8	402	804		/
1800	850.1	1129	236.3	472.6	362.2	724.2	457,5			/
2000	1026	1363	279.4	558.8	432.2	864.4	565			/

Note: Screwed-on fiange pipe.

**Weld-on Flange (short-neck)
Screw-on Flange**



DN	PN10		PN16	
	kg/pc	kg/2pcs	kg/pc	kg/2pcs
80	3,5	7	3,5	7
100	4	8	4	8
125	5	10	5	10
150	6,1	12,2	6,1	12,2
200	8,5	17	8,3	16,6
250	11,8	23,6	11,4	22,8
300	15,6	31,2	15,2	30,4
350	17,6	35,2	20,7	41,4
400	20,5	41	26,1	52,2
450	24,1	48,2	32,7	65,4
500	27,6	55,2	42,8	85,6

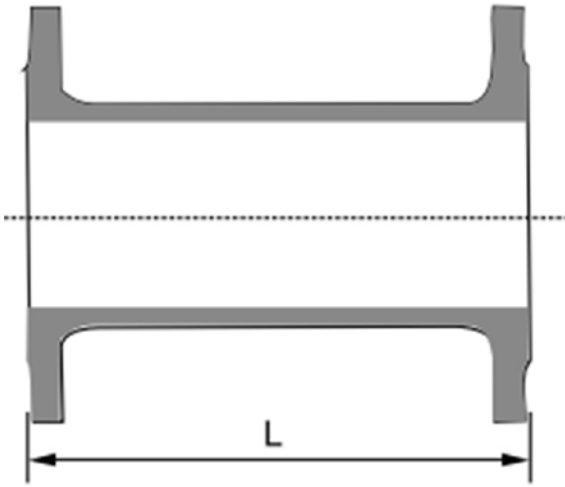
DN	PN10		PN16	
	kg/pc	kg/2pcs	kg/pc	kg/2pcs
600	38,4	76,8	64,9	129,8
700	50,2	100,4	65,3	130,6
800	66,7	133,4	85,9	171,8
900	78,7	157,4	102,6	205,2
1000	98,6	197,2	140,1	280,2
1200	114,2	228,4	208,5	417
1400	178,2	356,4	246,3	492,6
1600	244,7	489,4	346,7	693,4
1800	283,5	567	409,4	818,8
2000	336,4	672,8	489,2	978,4

Weld-on Flange (long-neck)



DN	PN10		PN16		PN25	
	kg/pc	kg/2pcs	kg/pc	kg/2pcs	kg/pc	kg/2pcs
DN80	4	8	4	8	4	8
DN100	5	10	5	10	5,5	11
DN150	8	16	8	16	9	18
DN200	11	22	11	22	13	26
DN250	15	30	15	30	19	38
DN300	19	38	19	38	24	48
DN350	26	52	29	58	38	76
DN400	31	62	35	70	47	94
DN450	36	72	43	86	59	118
DN500	45	90	60	120	72	144
DN600	59	118	85	170	100	200
DN700	95	190	108	216	143	286
DN800	100	200	117	234	167	234
DN900	125	250	143	286	204	408
DN1000	145	290	180	360	258	516
DN1200	180	360	235	470	335	670
DN1400	225	450	290	580		
DN1600	280	560	450	900		
DN1800			533	1066		

Double Flange Pipe K12 (cast-on)



DN	L	Mass (kg) PN16
80	200	9
	250	10
	300	11
	350	12
	400	12.5
	450	13
	500	14
	600	15.5
	700	17
100	800	19
	200	10.5
	250	11
	300	12
	350	13
	400	14
	450	15
	500	15.5
	600	18
	700	19
150	800	21
	900	23
	1000	25
	200	16
	250	17
	300	19
	350	20
	400	21

DN	L	Mass (kg) PN16
150	450	26
	500	27
	600	30
	700	33
	800	35
	900	38
200	1000	38
	200	22
	250	24
	300	26
	350	28
	400	30
	450	32
	500	34
	600	38
	700	42
250	800	46
	900	50
	1000	54
	200	29
	250	32
	300	35
	350	37
	400	40
	450	43
	500	45
	600	51
	700	56
800	61	
900	67	
1000	72	

Double Flange Pipe K12 (cast-on)

DN	L	Mass (kg) PN16	DN	L	Mass (kg) PN16	DN	L	Mass (kg) PN16		
300	200	39	450	800	148	800	700	349		
	250	42		900	160		800	377		
	300	45		1000	172		900	406		
	350	49		1200	195		1000	434		
	400	52		1300	207		1500	577		
	450	56	500	300	116		2000	720		
	500	59		400	130	900	300	280		
	600	66		500	143		400	315		
	700	72		600	157		500	349		
	800	79		700	171		600	384		
	900	86		800	185		700	418		
	1000	93		900	199		800	453		
	1200	106		1000	212		900	487		
350	200	51	1500	281	1000		522			
	250	56	2000	350	1500	694				
	300	60	600	300	170	2000	867			
	350	64		400	188	1000	300	370		
	400	68		500	206		400	411		
	500	76		600	224		500	452		
	600	85		700	242		600	493		
	700	93		800	261		700	534		
	800	101		900	279		800	575		
	900	110		1000	297		900	616		
	1000	118		1500	388		1000	657		
	1200	135		2000	479		1500	863		
	400	300		74	700		300	181	1100	2000
400		84		400			204	1000		764
500		94		500			227	1500		1005
600		104	600	250			2000	1246		
700		114	700	273		1200		1000		929
800		124	800	296			1500	1208		
900		134	900	320			2000	1487		
1000		144	1000	343			1400	1000	1158	
1200		164	1500	458		1500		1521		
450		300	89	2000		574	1600	2000	1884	
	400	101	800	300	234.	1000		1533		
	500	113		400	263	1500	1991			
	600	125		500	291	2000	2449			
	700	136		600	320					

Double Flange Pipe (weld-on)



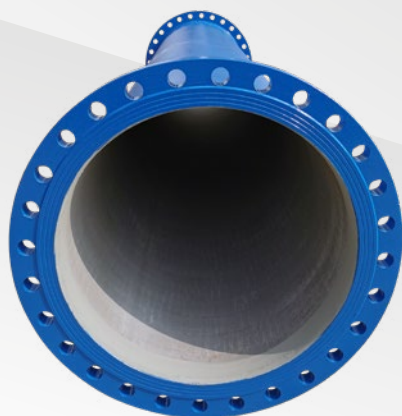
DN	L	Mass (kg)		
		PN10	PN16	PN25
80	1000	24	24	24
	2000	40	40	40
	3000	45	45	45
	4000	57	57	57
	5000	69	69	69
	5500	76	76	76
	5700	78	78	78
100	2000	46	46	47
	3000	56	56	57
	4000	71	71	72
	5000	86	86	87
	5500	94	94	95
	5700	97	97	98
150	2000	72	72	74
	3000	85	85	87

DN	L	Mass (kg)		
		PN10	PN16	PN25
150	4000	108	108	110
	5000	130	130	132
	5500	142	142	144
	5700	146	146	148
200	2000	102	102	106
	3000	114	114	118
	4000	145	145	149
	5000	175	175	179
	5500	191	191	195
250	5700	197	197	201
	2000	137	137	145
	3000	151	151	159
	4000	191	191	199
	5000	231	231	239
	5500	252	252	260

Double Flange Pipe (weld-on)

DN	L	Mass (kg)		
		PN10	PN16	PN25
300	2000	173	173	183
	3000	191	191	201
	4000	242	242	252
	5000	292	192	302
	5500	318	318	328
	5700	328	328	338
350	2000	219	225	243
	3000	242	248	266
	4000	305	311	329
	5000	368	374	392
	5500	400	406	424
	5700	413	419	437
400	2000	262	270	294
	3000	289	297	321
	4000	364	372	396
	5000	440	448	472
	5500	478	486	510
	5700	493	501	525
450	3000	340	354	386
	4000	430	444	476
	5000	519	533	565
	5500	564	578	610
	5700	582	596	628
500	3000	403	433	457
	4000	508	538	562
	5000	612	642	666
	5500	664	694	718
	5700	685	715	739
600	3000	530	582	612

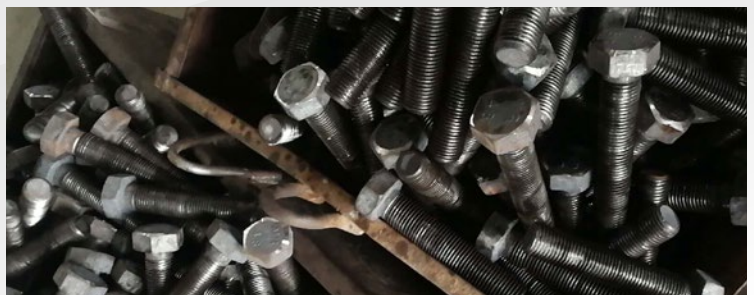
DN	L	Mass (kg)		
		PN10	PN16	PN25
600	4000	668	720	750
	5000	805	857	887
	5500	874	926	956
	5700	901	953	983
700	3000	712	738	808
	4000	886	912	982
	5000	1060	1086	1156
	5700	1182	1208	1278
800	3000	846	880	980
	4000	1061	1095	1195
	5000	1276	1310	1410
	5500	1384	1418	1518
900	3000	1031	1067	1189
	4000	1291	1327	1449
	5000	1551	1587	1709
	5500	1682	1718	1840
1000	3000	1218	1288	1444
	4000	1528	1598	1754
	5000	1837	1907	2063
	5500	1992	2062	2218
1200	3000	1621	1731	1931
	4000	2041	2151	2351
	5000	2461	2571	2771
	5500	2671	2781	2981
	5700	2755	2865	3065



Special Fittings & Fabrications

For non standard and bespoke requirements we can offer a wide variety of solutions. Beginning with the design we can assist clients with technical advice, CAD drawings and support.

Imco International can also supply valves, tapping saddles, penstocks and other similar products relating to water projects.



Business Performance and History

Imco International has won wide recognition as a leading supplier of ductile iron products and has cultivated a number of loyal customers with its high quality products and exemplary service. Adhering to the ethos of having empathy and a connection to the clients' needs, the company has dedicated staff that are loyal to this core principal. Imco International's products are successfully installed in 22 countries across the world. There is a relatively large international demand, especially in Asia & Africa as well as clients in Europe and the United Kingdom. Imco International is proud to supply a wide variety of clients including a famous UK ductile iron brand, well established multinational construction & civil engineering companies and various trading companies. We have a history of strong performance and achievements since our founding in 1967.



In 1979 Imco International provided the 5th Arabian Gulf football cup and medals to the winning team in Iraq



Ductile iron pipes supplied for Doma Irrigation project - Nigeria - 1991



Multiple shipments of ductile iron pipes, fittings & valves including 14628m³ of ductile iron pipes for Bauchi Water supply project 2019-2020



Multiple shipments of ductile iron fittings and valves for several projects, supplied to a Chinese contractor in Zambia & Mozambique 2006 - present



Ductile iron fittings, pipes, valves and penstocks for Ero Dam Water treatment plant rehabilitation 2020



Ductile iron fittings according to EN598 for a well established European brand, destined for an Iraqi project - 2021

Transportation and Handling of Ductile Iron Pipes & Fittings

Whilst ductile iron pipes and fittings are not generally susceptible to damage by impact, adverse handling or storage can result in damaged coatings or linings.

Pipes should be loaded with reasonable care and secured to the means of transportation during transit to prevent any movements, especially against other pipes or fittings.

Any sharp edges on the transportation vehicle should also be padded to avoid any damage, this means securing should be assigned and considered in order to minimise any damage to the coating.

Fitting slings or lifting beams with correctly padded hooks should always be used when offloading pipes using cranes. The pipes or fittings diameter, type of staking, outreach required and site conditions should be taken into consideration when determining the suitability of lifting equipment.

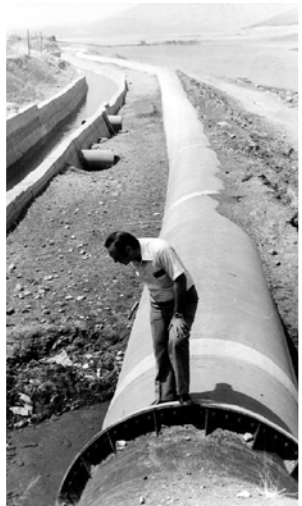


Storage

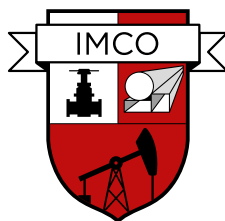
Ductile iron pipes should not be stored in direct contact with the ground. We recommend using a wood bearer with a minimum height of 100mm from the ground. Care should also be taken when storing in terms of stacking and, in particular, consideration should be made to making sure tiers always follow the opposite direction. As shown in the photograph below, socket joints are all adjacent in the first tier to the front of the image, whilst in the second tier the socket joints are all adjacent to the rear of the image. This ensures that the spigot does not make contact with the bell of the socket.



Over 50 years of history



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