



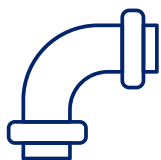
AFRICA
HDPE
FABRICATION & FITTINGS

HDPE FABRICATION

Africa HDPE is a leading provider of HDPE products for a variety of applications. Our HDPE products are made from high-density polyethylene and are highly durable and resistant to wear and tear chemicals, and extreme temperatures. Africa HDPE specializes in the fabrication of custom HDPE products and supplies a wide range of HDPE fittings.

We strive to provide our customers with the highest quality HDPE products available, at a competitive price along with excellent customer service.

Contact us today to learn more about our products and services.



HDPE FABRICATION

HDPE JOINTING METHODS

One of the greatest features of HDPE pipes is the fact that a wide variety of joining methods is available to suit a whole range of applications. The joining methods can be divided into permanent joining and detachable joining:

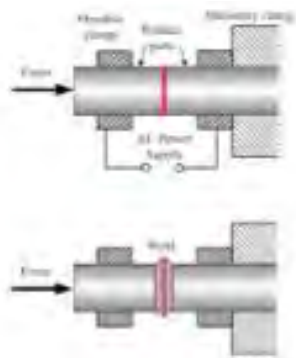
Permanent Joining	Reference	Non-Permanent (detachable) Joining	Reference
Butt Welding	2.2.1	Compression Fittings	2.2.4
Electro Fusion Welding	2.2.2	Stub & Flanged Connection	2.2.5
Socket Fusion Welding	2.2.3	Tak Clamp	2.2.6
		Victaulic Clamp	2.2.7

• Butt Welding

Butt welding is a thermofusion process which involves the simultaneous heating of the ends of two components which are to be joined until a melt state is attained on each contact surface. The two surfaces are then brought together under controlled pressure for a specific cooling time and homogeneous fusion is formed upon cooling. The resultant joint is resistant to end thrust and has comparable performance under pressure to the pipe.

Butt welding is a very economical and reliable joining technique for making permanent welded joints, requiring only butt welding equipment. Butt welding or Butt Fusion is a simplest and space-saving jointing method to connect the pipe and fittings of PE.

Butt welding principles

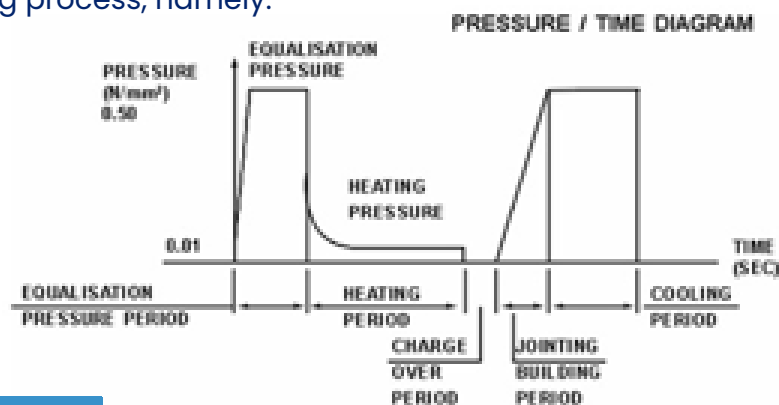


- Butt welding is particularly suitable for prefabricating pipe sections and special fittings. Fittings with short spigot ends and fittings with long spigot ends are suitable for butt welding.
- Only pipes and fittings from the same wall thickness series can be butt welded together. Dissimilar materials and dissimilar wall thicknesses can be jointed by electrofusion. Please note that the maximum working pressure should not exceed the lower of the two pipes.

Butt welding procedure

There are five main steps in the welding process, namely:

- 1) Preparations (on equipment)
- 2) Bead-forming (also known as adapting or equalisation),
- 3) Heating (also known as soaking or pre-heating),
- 4) Joining
- 5) Cooling



Electrofusion Welding

All electrofusion fittings employ the same basic principle. The socket of the fitting incorporates an electrical heating coil. An electrofusion control unit (ECU) supplies the electrical energy necessary to heat the coil. When the coil is energized the material adjacent to it melts and forms an expanding pool which comes into contact with the surface of the pipe. The continued introduction of heat energy causes the pipe surface to melt and a mixing of pipe melt and fitting melt takes place; this is vital to produce a good weld. Following the termination of the heat cycle, the fitting and pipe are left to cool and the melted material solidifies to form a sound joint.

General steps to be followed when performing electro fusion joining are:

- Prepare the pipe (scrape, clean).
- Mark the pipe.
- Align and restrain pipe and fitting per manufacturer's recommendations.
- Apply the electric current.
- Cool and remove the clamps.
- Document the fusion process.



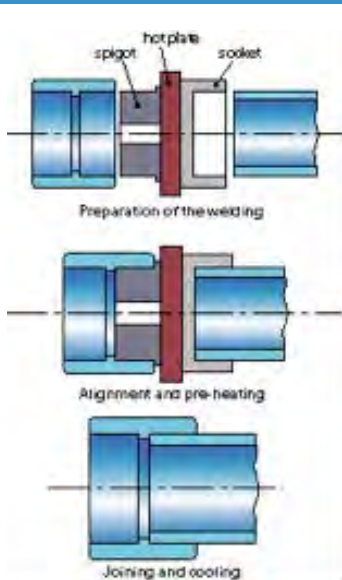
High integrity, consistently reproducible electrofusion joints will only be achieved if the following criteria are met:

- Heating coils are as close to the joint surfaces as possible.
- Wire position is accurately controlled during manufacture and during subsequent fusion process.
- Heat distribution is uniform over the length of the hot zone.
- Melt pressure and temperature are both accurately controlled.
- Coils are protected from damage prior to, during and after fusion.
- Spigot ends are scraped properly.

Socket fusion welding is a widely used technique for assembling plastics piping systems using injection moulded fittings. Operating principles are straightforward and the welding cycle essentially consisting of a heating phase and a cooling/welding phase.

A metal socket mounted on a hot plate heats the outside circumference of the pipe (see process schematic below). Heating occurs along a defined length which will vary depending on the size of pipe and fitting being welded. A metal spigot on the opposite side of the hot plate simultaneously heats the inside surface of the injection moulded fitting. The length of the heated region is the same as that for the pipe.

Both the pipe and fitting are heated for a set length of time after which the heated socket/spigot tooling is removed and the pipe is pushed into the fitting. The pipe and fitting is then left for a predetermined time to cool and form a weld. Depending on the size of pipe, socket fusion welding can either be done by hand or carried out on a manually operated machine.



Compression Fittings

For small bore pipe connections up to size 125MM OD, compression type joints are satisfactory. The installation process started with the cutting of pipe ends square or 90deg in relation to its axis. Fit the collar and clinching ring into the pipe and place the rubber O-ring at the tip of the pipe. Then push the body of the fitting until the pipe ends reaches its full stop. Slide the clinching ring and Collar (Nut) until it catches the fitting and tight fully using a belt or chain wrench.

Stub & Flanged Connection

A HDPE Stub is butt welded to the pipe with the loose CS backing flange inserted in the middle of the pipe to establish a detachable joint. A continuous line can then be made by simply bolting the flanges together which are held securely in place.

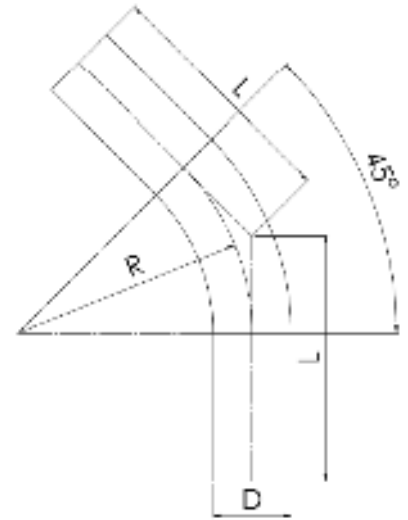
The jointing method "Stub & Flange Both Ends (SFBE) is regularly used in the mining industry as it has numerous advantages if you take into account the regular maintenance (easy serviceability) of your pipeline. The fact that you can cut out the "bead" after the weld has been done makes SFBE a very popular jointing method for Slurry & Feed lines. Primarily used where the pipes may need cleaning later on or may have to be moved from one place to another after use.





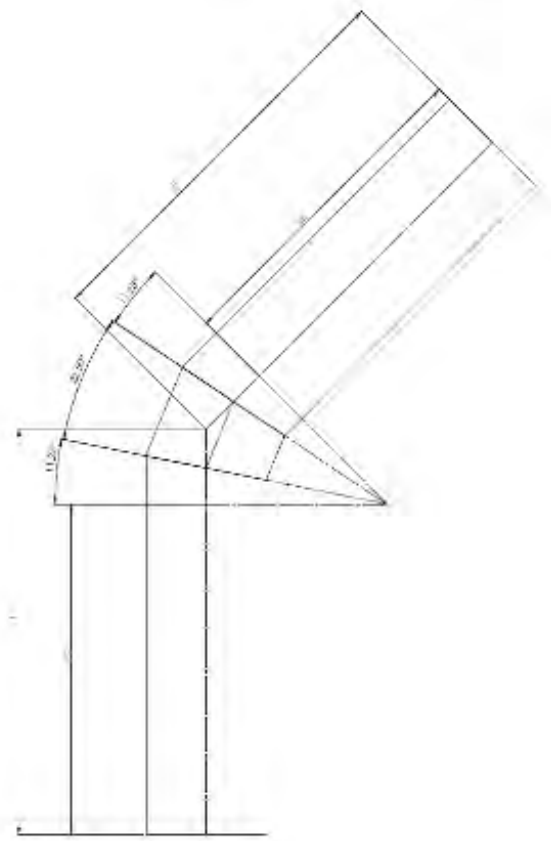
Fabricated Fittings : Seamless Bends – 45 degree & 90 degree

OD	D (mm)	R (mm)	45 Deg L (mm)	90 Deg L (mm)
110		330	345	535
125		375	360	580
140		420	380	625
160		480	405	685
180		540	430	745
200		600	455	805
225		675	485	880
250		750	515	955
280		840	555	1045
315		945	585	1150
355		1065	645	1270
400		1200	705	1405
450		1350	765	1555
500		1500	830	1705



Fabricated Fittings : Segmented Bends – 45 Degree Bend

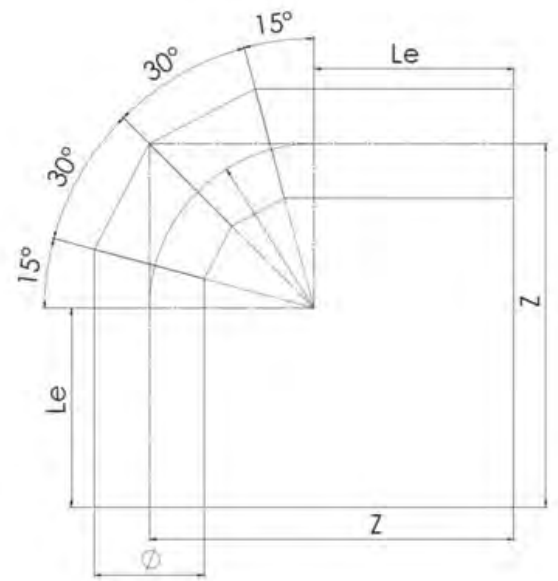
Diameter (d)	Radius	Z
50	75	220
63	95	280
75	113	330
90	135	400
110	165	370
125	188	400
140	210	430
160	240	470
180	270	510
200	300	550
225	338	600
250	375	650
280	420	710
315	472	620
355	532	680
400	600	760
450	675	900
500	750	900
560	840	950
630	945	1100



Fabricated Fittings : 90 Degree

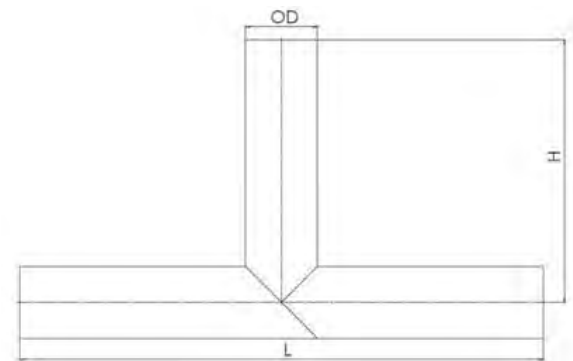
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Diameter (d)	Radius	Z
50	75	220
63	95	280
75	113	330
90	135	400
110	165	370
125	188	400
140	210	430
160	240	470
180	270	510
200	300	550
225	338	600
250	375	650
280	420	710
315	472	620
355	532	680
400	600	760
450	675	1300
500	750	1400
560	840	1150
630	945	1300



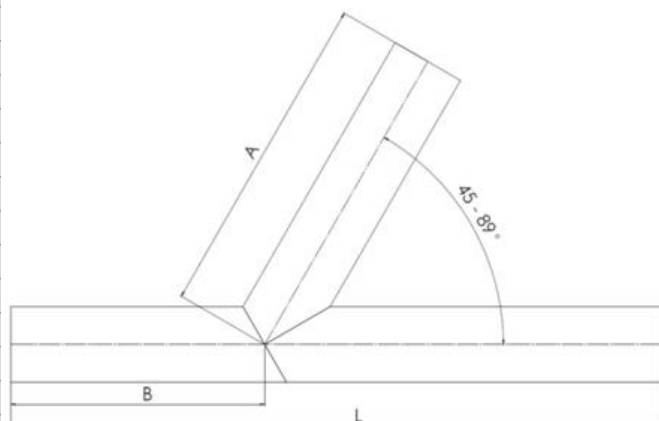
Fabricated Fittings : Tees

OD	D (mm)	H (mm)	L (mm)
50	50	150	300
63	63	150	300
75	75	400	800
90	90	400	800
110	110	400	800
125	125	400	800
140	140	400	800
160	160	400	800
180	180	400	800
200	200	450	900
225	225	450	900
250	250	450	900
280	280	450	900
315	315	650	1300
355	355	650	1300
400	400	650	1300
450	450	850	1700
500	500	850	1700
560	560	900	1800
630	630	900	1800



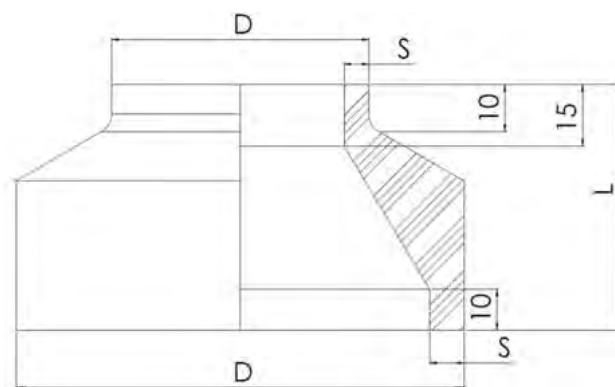
Fabricated Fittings : Lateral plain ended

OD	D (mm)	A (mm)	B (mm)	L (mm)
50		200	150	400
63		200	150	400
75		475	370	950
90		475	370	950
110		475	370	950
125		475	370	950
140		475	370	950
160		475	370	950
180		875	530	1350
200		875	530	1350
225		875	530	1350
250		875	530	1350
280		900	700	1800
315		900	700	1800
355		900	700	1800
400		900	700	1800
450		1100	870	2200
500		1100	870	2200
560		1200	950	2400
630		1200	950	2400



Fabricated Fittings : Machines Reducing Bushes

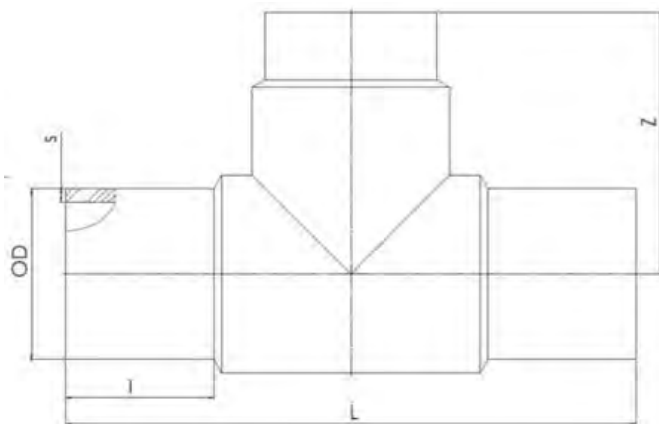
OD D1(mm)	OD D ² (mm)	L (mm)
25	20	60
32	20/25	60
40	20/25/32	60
50	25/32/40	60
63	25/32/40/50	60
75	32/40/50/63	60
90	40/50/63/75	60
110	63/75/90	60
125	75/90/110	60
140	90/110/125	80
160	90/110/125/140	80
180	110/125/140/160	80
200	140/160/180	80
225	160/180/200	80
250	180/200/225	80
280	200/225/250	80
315	250/280	80
355	280/315	90
400	315/355	90
450	355/400	90
500	400/450	90



Tees 90 degree : SDR 17 & 11

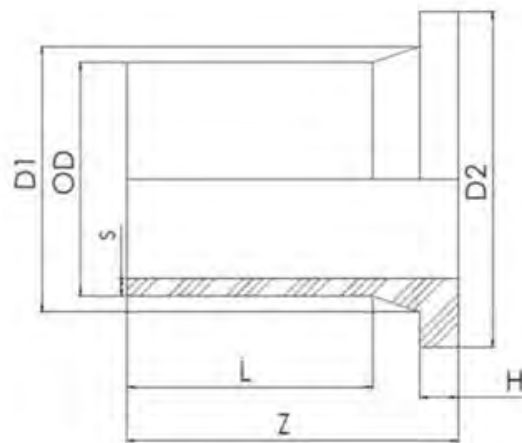
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DE	L	Z	I
20	107	54	35
25	124	62	41
32	150	75	51
40	164	82	55
50	166	83	51
63	228	114	70
75	240	120	73
90	306	153	86
110	366	168	95
125	354	177	100
140	386	193	105
160	450	225	124
180	466	233	119
200	502	251	127
225	554	272	138
250	628	314	148
280	692	346	160
315	760	380	170



Stubs Flanges - Long

DE	SDR 17		SDR 11		D ¹	D ²	Z
	H	L	H	L			
20			7	64	27	45	88
25			9	51	33	58	90
32			11	57	40	68	95
40			12	55	50	78	100
50			12	63	61	88	110
63	14	66	15	66	75	102	120
75	18	78	17	78	89	122	130
90	18	84	18	84	105	138	145
110	18	100	18	115	125	158	155
125	18	108	25	125	132	158	170
140	18	109	25	109	155	188	175
160	18	110	25	140	175	212	195
180	20	115	31	115	182	212	195
200	24	127	32	127	232	268	205
225	24	137	33	137	235	268	215
250	25	146	35	130	285	320	205
280	25	156	35	156	291	320	245
315	25	160	35	155	335	370	225

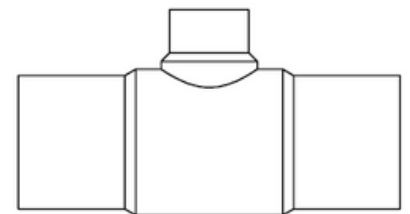
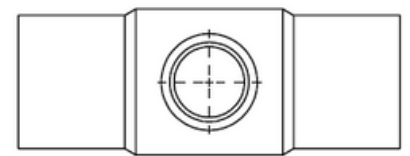
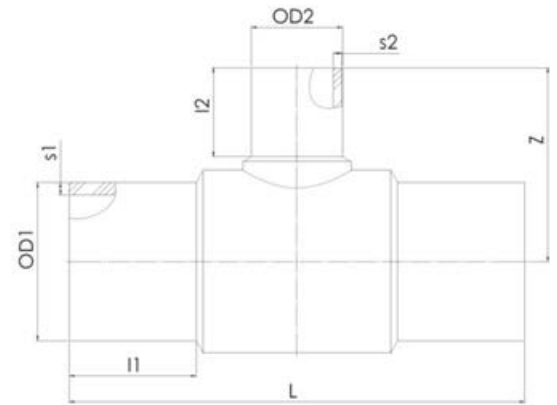


Reducing Tees - Long

SDR 17 & 11

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DE ¹	DE ²	L	Z	I ¹	I ²
63	32	228	91	70	46
63	50	213	100	63	56
75	32	256	103	70	46
75	50	253	113	70	55
75	63	252	117	70	63
90	50	275	117	79	55
90	63	264	134	79	63
90	75	272	138	74	70
110	63	316	135	88	62
110	75	305	154	82	70
110	90	310	155	91	78
125	90	330	168	110	91
125	110	340	170	87	82
140	63	386	160	105	77
140	75	386	173	105	78
140	90	388	182	105	87
140	110	388	188	105	95
160	63	424	174	110	72
160	75	424	180	111	73
160	90	424	190	111	84
160	110	424	197	111	93
180	75	460	190	116	93
180	90	460	200	116	85
180	110	420	200	116	95
180	125	430	215	116	100
180	140	460	220	116	104
180	160	460	225	116	110
200	63	550	225	134	80
200	90	550	227	134	95
200	110	550	240	134	103
200	125	550	240	134	110
200	160	550	265	134	114
225	63	540	241	130	69
225	75	540	248	130	76
225	90	440	224	120	80
225	110	522	271	120	92
225	125	522	266	120	93
225	140	540	276	130	104
225	160	522	252	120	109
225	180	522	280	131	131
250	110	575	242	130	82
250	160	575	261	130	98
315	110	546	290	170	100
315	160	575	310	170	120
315	225	638	335	170	145
315	250	670	333	170	150



Elbows 45 degree - SDR 17 & 11

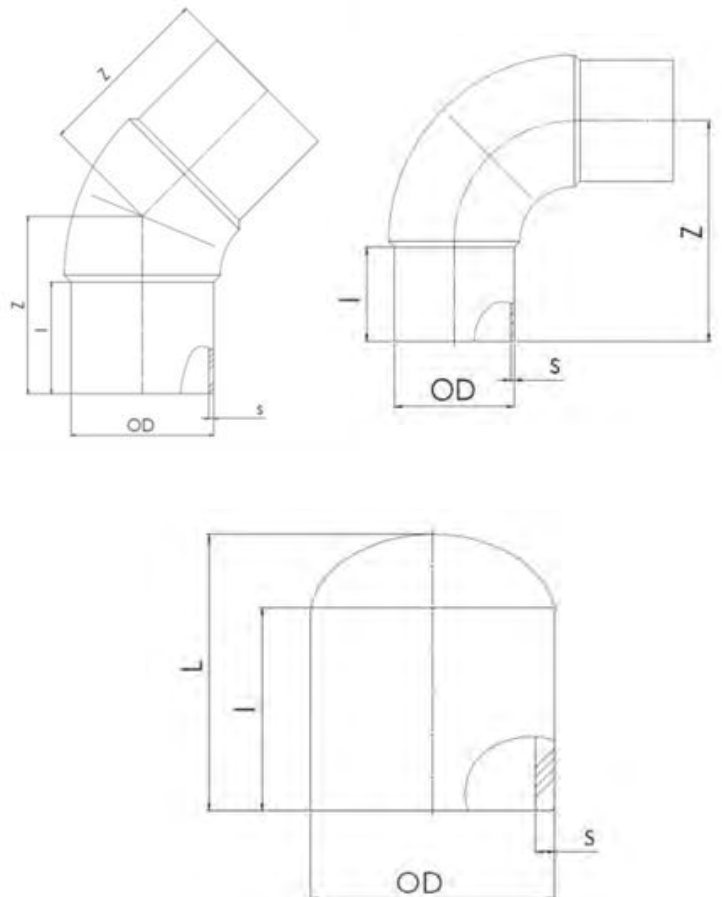
DE	Z	I
20	44	39
25	41	35
32	48	47
40	58	44
50	74	54
63	82	56
75	96	75
90	120	84
110	129	91
125	147	101
140	153	104
160	169	113
180	186	120
200	201	127
225	218	134
250	217	155
280	232	162
315	251	173

Elbows 90 degrees - SDR 17 & 11

DE	Z	I
20	70	60
25	63	42
32	72	47
40	69	44
50	77	50
63	95	56
75	116	72
90	139	78
110	158	86
125	180	104
140	198	119
160	210	117
180	222	116
200	250	128
225	269	136
250	307	180
280	340	200
315	370	210

End Caps - SDR 17 & 11

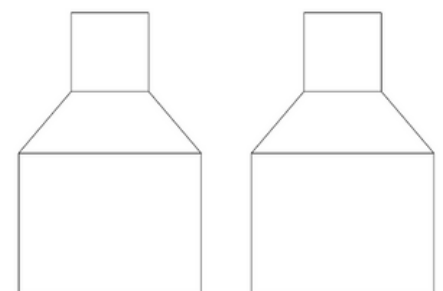
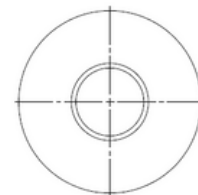
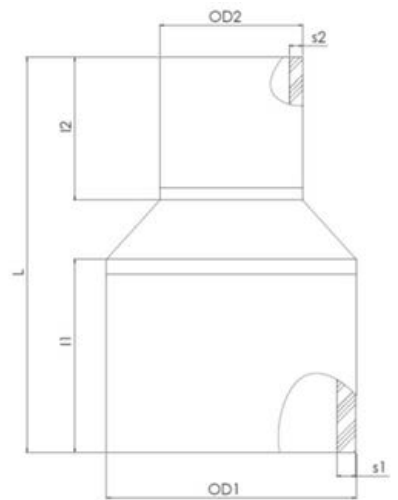
DE	L	I
20	45	35
25	52	40
32	58	44
40	67	50
50	75	55
63	85	62
75	95	63
90	110	79
110	127	88
125	124	95
140	140	110
160	152	121
180	169	134
200	184	140
225	200	160
250	230	152
280	257	162
315	262	167



Reducers Concentric - Long

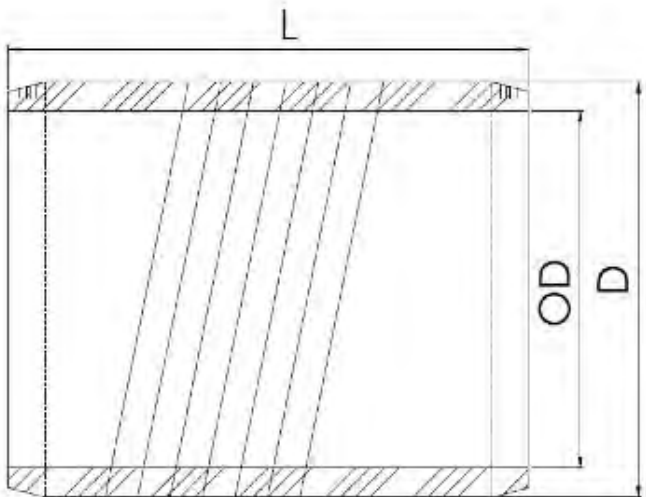
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DE ¹	DE ²	SDR 17			SDR11		
		L	I ¹	I ²	L	I ¹	I ²
25	20				87	40	41
32	20				92	43	39
32	25				89	44	37
40	20				94	45	36
40	25				96	47	35
40	32				93	50	39
50	25	130	55	40	136	62	48
50	32	132	55	44	134	61	50
50	40	134	55	49	134	61	56
63	32	146	63	44	150	69	50
63	40	150	63	49	152	69	55
63	50	150	63	55	151	69	60
75	50	0	0	0	148	64	58
75	63	147	66	63	149	65	59
90	50	142	64	49	142	64	49
90	63	144	69	55	144	69	55
90	75	163	74	65	163	76	61
110	63	174	85	63	174	85	63
110	75	180	85	57	180	85	57
110	90	179	79	74	179	99	93
125	63	187	87	61	187	87	61
125	75	205	105	76	205	105	76
125	90	216	99	86	216	99	86
125	110	201	89	84	200	90	82
140	75	230	112	70	230	112	70
140	90	230	112	79	230	112	79
140	110	230	112	82	230	112	82
140	125	214	99	92	211	96	90
160	90	216	101	72	217	102	74
160	110	223	104	84	223	104	84
160	125	227	95	91	231	98	92
160	140	217	110	95	217	110	95
180	90	237	105	79	237	105	79
180	110	270	120	92	270	120	92
180	125	278	116	103	278	116	103
180	140	270	120	110	270	120	110
180	160	277	115	114	277	115	114
200	125	283	123	103	283	123	103
200	140	275	120	110	275	120	110
200	160	253	105	100	252	105	100
200	180	272	120	115	272	120	115
225	110	312	130	94	312	130	94
225	140	295	130	110	295	130	110
225	160	312	130	109	312	130	109
225	180	310	130	111	310	130	111
225	200	272	124	115	272	124	115
250	160	339	138	111	339	138	111
250	180	338	137	123	338	137	123
250	200	337	137	127	337	137	127
250	225	337	146	137	337	137	137
280	180	350	146	119	350	146	119
280	200	350	146	124	350	146	124
280	225	350	146	129	350	146	129
280	250	350	146	134	350	146	134
315	200	380	180	134	380	180	134
315	225	380	157	133	380	157	133
315	250	380	157	138	380	157	138



Sockets - SDR 33

DE	L	I
110	160	128
125	160	140
140	170	160
160	180	184
180	180	206
200	180	250
225	200	250
250	200	280
280	200	315
315	220	355
315	220	400
400	220	450
450	220	500
500	250	560



Sockets - SDR 11

DE	L	I
20	60	33
25	66	38
32	77	45
40	86	54
50	98	68
63	112	82
75	122	98
90	138	118
110	158	142
125	172	160
140	184	181
160	202	206
180	210	220
200	220	247
225	236	277
250	246	315
280	268	355
315	285	400
355	300	450
400	320	500
450	340	560
500	360	630
560*	380	630
630*	420	710

* Maximum pressure rating - 10 Bar

