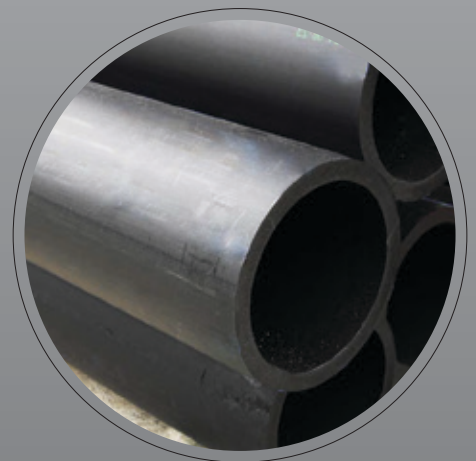
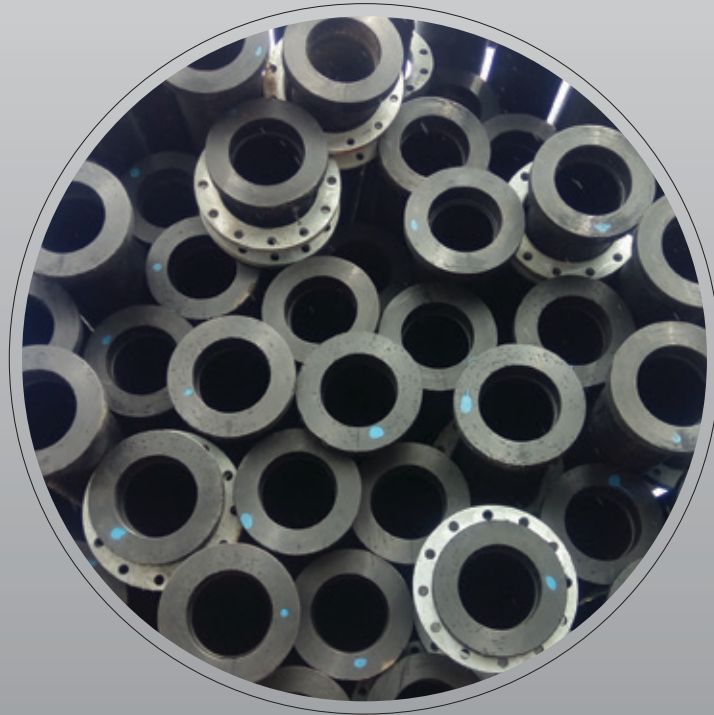


HDPE Pipe

Catalogue



Overview



Proplastics is a leading supplier of world class plastic pipe systems for water and sewer reticulation to Southern Africa. Proplastics produces a wide range of Polyethylene (PE) pipes and fittings in an International Organisation of Standards (ISO) 9001 controlled environment. The pipes and fittings are manufactured to high technical South African Bureau of Standards (SABS) specification, South African National Standard (SANS) 4427, thereby ensuring excellent quality and reliability.

Proplastics pipes and fittings are manufactured from 100% virgin PE material for use at pressures up to 25 bars. In its endeavour of sustainable growth, Proplastics invested in a state of the art machinery, a development which will see its product range widen from a minimum nominal size of 20 to 400mm diameter.

PE 100, PE 80, PE 63

SANS covers three different material designations namely, PE 100, PE 80 and PE 63. Considerable strides have been made in improving the quality of HDPE material and its long term ability to withstand pressure. These material designations are based on the long term hydrostatic strength known as the Minimum Required Strength (MRS). The MRS is determined by performing regression analysis in accordance with ISO 9080. Extrapolation of the regression analysis shows Proplastics HDPE pipes have a minimum design life of fifty (50) years. Applying a design coefficient of 1.25 to the MRS, Proplastics pipes conform to SANS 4427 per specifications in the table below:-

PE 100, PE 80, PE 63

Material Designation	MRS (MPa)	Design Stress (MPa)
PE 63	6.3	5.0
PE 80	8.0	6.3
PE100	10	8.0

Clearly PE 100 has the advantage of a higher design stress allowing for higher operating working pressure. Wall thickness for a particular size and class becomes progressively less with use of material with a higher MRS and hence savings in mass and improved flow due to increase in cross sectional area. For pressure applications the choice is usually between PE 80 and PE 100 compound whilst PE 63 would normally be used for non-pressure or ducting applications.

PE 100 PIPE RANGE AND DIMENSIONS

Pressure rating	PN 6		PN 10		PN 12.5		PN 16	
	kPa	Bars	PSI	Head (m)	MPa	600	1000	1250
	6	10	145	100	1	1.25	1.6	
	87	145	210	145	1.5	1.875	2.4	
	60	100	145	100	1	1.25	1.6	
	0.6	1	1.25	1.25	1.25	1.25	1.6	
NOMINAL SIZE	min wall	nom mass	min wall	nom mass	min wall	nom mass	min wall	nom mass
mm	(mm)	(kg/m)	(mm)	(kg/m)	(mm)	(kg/m)	(mm)	(kg/m)
20	1.9	0.1	1.9	0.1	1.9	0.1	2.0	0.1
25	1.9	0.1	1.9	0.1	2.0	0.1	2.3	0.2
32	1.9	0.2	2.0	0.2	2.4	0.2	3.0	0.3
40	1.9	0.2	2.4	0.3	3.0	0.3	3.7	0.4
50	2.1	0.3	3.0	0.4	3.7	0.5	4.6	0.7
63	2.7	0.5	3.8	0.7	4.7	0.9	5.8	1.0
75	3.3	0.7	4.5	1.0	5.6	1.2	6.8	1.4
90	4.1	1.1	5.4	1.4	6.7	1.7	8.2	2.1
110	5.1	1.7	6.6	2.1	8.1	2.6	10.0	3.1
125	4.8	1.8	7.4	2.7	9.2	3.3	11.4	4.0
140	5.4	2.3	8.3	3.4	10.3	4.2	12.7	5.1
160	6.2	3.0	9.5	4.5	11.8	5.5	14.6	6.6
180	6.9	3.7	10.7	5.7	13.3	6.9	16.4	8.4
200	7.7	5.7	11.9	7.0	14.7	8.5	18.0	10.2
225	8.6	5.8	13.4	8.9	16.6	10.8	20.5	13.1
250	9.6	7.2	14.8	10.9	18.4	13.3	22.7	16.1
280	10.7	9.0	16.6	13.7	20.6	16.7	25.4	20.2
315	12.1	11.5	18.7	17.3	23.2	21.2	28.6	25.6
355	13.6	14.5	21.1	22.0	26.1	26.8	32.2	32.5
400	15.3	18.4	23.7	27.9	29.4	34.1	36.3	41.2

Recommended Bending Radii for PE pipes

SDR	Min. Bending Radii
26	25D
17	15D
11	10D

D = outside diameter of pipe

HDPE PIPE Catalogue

Key Attributes And Applications

PE pipes offer distinct attributes and application over other materials (e.g. steel, fibre cement, concrete, etc.). Examples include:-



Potable Water Reticulation



Water Works & Water Treatment Plants



Sewage Works



Agriculture & Irrigation Industry



Mining Industry Slurries, Effluent, Vacuum Lines

Attributes

- No scale formation in the pipe bore; this means there is no contamination, no reduction in flow and no additional mains cleaning costs
- Life span of over fifty (50) years; means lower replacement costs for PE systems
- Smooth inside surface hence low frictional loss
- Flexible and versatile in all orientations
- Jointing outside the trench, above ground
- UV resistant



Fishing Industry

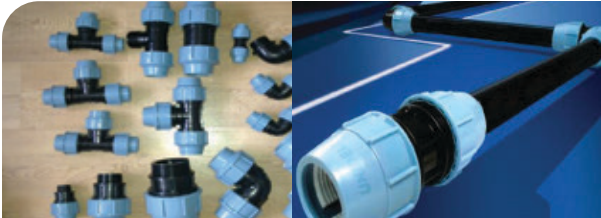
- Light weight
- Ease of handling
- Resistance to salt water and attack by marine organisms



Telecommunication Industry

- Conduit for cable duct and fibre optics
- Flexible
- Ease of working with rigorous laying procedures
- Virtually maintenance free

Joining Methods



Compression Fittings

Compression Fittings Joint

Compression Fittings Installation Tips:-

- Cut the pipe squarely at right angles using special pipe cutting tools or circular or band saw.
- Eliminate any burrs and bevel the end of the pipe to facilitate easy assembly and to prevent damage to the fitting gasket.
- Unscrew the blue ring nut without removing the rings locked inside (integral component).
- Unscrew the blue nut and put it on to pipe followed by the white clamping ring. Make sure the clamping ring is in the correct position, with the largest diameter facing the fitting.
- Place the integrated component on the pipe followed by the gasket.
- Press the pipe axially into the fitting, past the gasket, until it touches the internal register inside the fitting body.
- Tighten the ring nut by hand and then use the torque wrench.

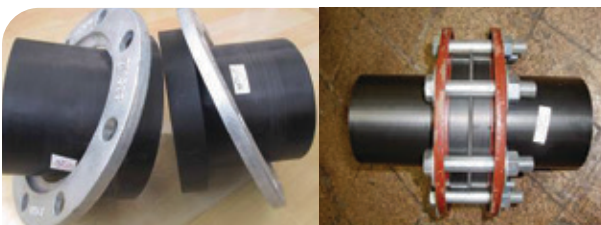


Butt Welding Machine

Butt Welding Joint

Butt Welding Tips:-

- Check weather conditions, high humidity and temperatures below 0°C are not favourable.
- Always make sure the ends are clean and trimmed square to the axis of the pipe.
- Always do a dummy weld and make sure the pipes are properly aligned and in the same plane.
- Make sure you always have the specified pressures and times and that the heater plate is calibrated and functional.
- Use a competent person.



Flange Stubs

Flange (VJ) Joint

Flange Joint Tips:-

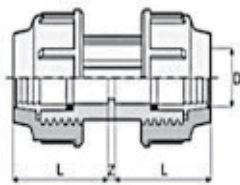
- Always make sure the seal/gasket is correctly positioned.
- Bolts must be fastened from opposite sides.
- If pipes are suspended supports must be provided on both sides of the joint.
- Pipe body must be supported to avoid surging.
- No short cuts. All bolt holes provided for on backing rings must be used.

Compression Fittings

1. STRAIGHT COUPLING



Straight Coupling

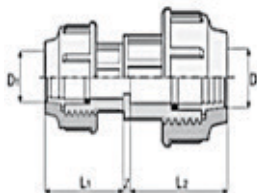


D x D	L	Z	Mass	Code	PN
20 x 20	50	4	66	43502041	16
25 x 25	57	4	96	43502541	16
32 x 32	64	4	144	43503241	16
40 x 40	76	4	242	43504041	16
50 x 50	88	4	374	43505041	16
63 x 63	103	9	599	43506341	16
75 x 75	118	4	905	43507541	16
90 x 90	136	5	1290	43509041	16
110 x 110	151	4	1970	43511041	16

2. REDUCING COUPLING



Reducing Coupling

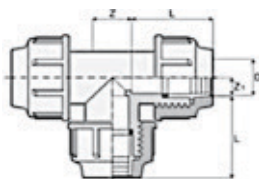


D x D1	L1	L2	Z	Mass	Code	PN
25 x 20	50	57	4	81	43502542/20	16
32 x 25	53	58	4	123	43503242/25	16
40 x 32	64	76	4	190	43504042/32	16
50 x 40	76	88	4	319	43505042/40	16
63 x 32	64	103	4	403	43506342/32	16
63 x 50	88	103	4	492	43506342/50	16
75 x 50	88	118	4	664	43507542/50	16
75 x 63	103	118	4	757	43507542/63	16
110 x 90	136	151	4	1682	43511042/90	16

3. EQUAL TEE



Equal Tee

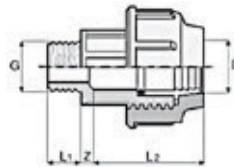


D x D x D	L	Z	Z1	Mass	Code	PN
20 x 20 x 20	50	26	13	101	43502044	16
25 x 25 x 25	57	30	15	151	43502544	16
32 x 32 x 32	64	38	19	236	43503244	16
40 x 40 x 40	76	46	23	390	43504044	16
50 x 50 x 50	88	56	28	598	43505044	16
63 x 63 x 63	103	70	35	944	43506344	16
75 x 75 x 75	118	82	41	1427	43507544	16
90 x 90 x 90	136	98	49	2113	43509044	16
110 x 110 x 110	151	120	60	3191	43511044	16

Compression Fittings

4. MALE ADAPTOR

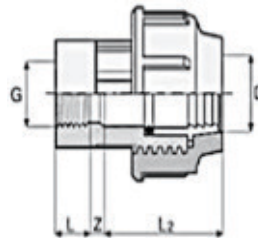
D x G	L1	L2	Z	Mass	Code	PN
20 x ½"	18	50	18	36	43502046/.5	16
20 x ¾"	20	50	19	38	43502046/.75	16
20 x 1"	20	50	26	40	43502046/1	16
25 x ½"	18	57	19	53	43502546/.5	16
25 x ¾"	20	57	20	54	43502546/.75	16
25 x 1"	20	57	26	56	43502546/1	16
32 x ¾"	20	64	23	81	43503246/.75	16
32 x 1"	20	64	26	83	43503246/1	16
32 x 1¼"	24	64	26	89	43503246/1.25	16
40 x 1"	20	76	26	137	43504046/1	16
40 x 1¼"	24	76	29	140	43504046/1.25	16
40 x 1½"	24	76	29	143	43504046/1.5	16
50 x 1¼"	24	88	29	214	43505046/1.25	16
50 x 1½"	24	88	29	214	43505046/1.5	16
50 x 2"	29	88	34	222	43502046/2	16
63 x 2"	29	103	34	347	43502046/2	16
63 x 2½"	32	103	39	361	43502046/2.5	16
75 x 2"	29	118	34	520	43502046/2	16
75 x 2½"	32	118	40	516	43502046/2.5	16
75 x 3"	38	118	43	534	43502046/3	16
90 x 2"	29	136	34	740	43502046/2	16
90 x 3"	38	136	43	750	43502046/3	16
90 x 4"	44	136	49	793	43502046/4	16
110 x 3"	38	151	43	1138	43502046/3	16
110 x 4"	44	151	49	1156	43502046/4	16



Male Adaptor

5. FEMALE ADAPTOR

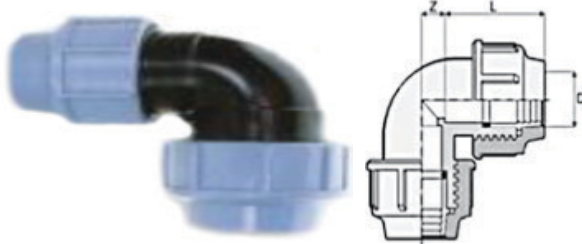
D x G	L	L2	Z	Mass	Code	PN
20 x ½"	19	50	5	41	43502052/.5	16
20 x ¾"	21	50	6	47	43502052/.75	16
25 x ½"	19	57	3	54	43502552/.5	16
25 x ¾"	21	57	6	61	43502552/.75	16
25 x 1"	21	57	8	68	43502552/1	16
32 x ¾"	21	64	4	88	43503252/.75	16
32 x 1¼"	25	64	8	100	43503252/1.25	16
40 x 1"	21	76	4	148	43504052/1	16
40 x 1¼"	25	76	4	155	43504052/1.25	16
40 x 1½"	25	76	6	172	43504052/1.5	16
50 x 1¼"	25	88	4	231	43505052/1.25	16
50 x 1½"	25	88	6	234	43505052/1.5	16
50 x 2"	30	88	6	254	43505052/2	16
63 x 1"	30	103	3	374	43506352/1	16
75 x 2½"	33	118	4	635	43507552/2.5	16
90 x 2"	30	136	3	700	43509052/2	16
90 x 3"	39	136	10	932	43509052/3	16
110 x 3"	39	151	10	1316	43511052/3	16
110 x 4"	45	151	10	1390	43511052/4	16



Female Adaptor

Compression Fittings

6. 90° ELBOW



90° Elbow

D x D	L	Z	Mass	Code	PN
20 x 20	50	13	70	43502043	16
25 x 25	57	15	105	43502543	16
32 x 32	64	19	161	43503243	16
40 x 40	76	23	269	43504043	16
50 x 50	88	28	415	43505043	16
63 x 63	103	35	656	43506343	16
75 x 75	118	41	994	43507543	16
90 x 90	136	49	1450	43509043	16
110 x 110	151	60	2193	43511043	16

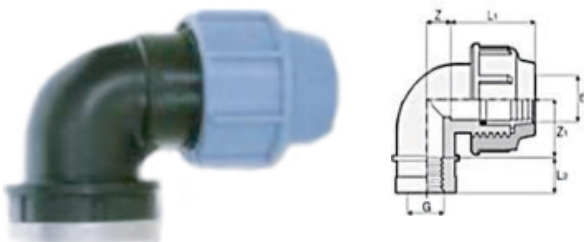
7. 90° MALE ELBOW



90° Elbow Male Offtake

D x G	L1	L2	Z	Z1	Mass	Code	PN
20 x ½"	50	18	13	46	50	43502051/.5	16
20 x ¾"	50	20	13	46	50	43502051/.75	16
25 x ¾"	57	20	15	52	75	43502551/.75	16
25 x 1"	57	20	15	52	75	43502551/1	16
32 x 1"	64	20	19	61	120	43503251/1	16
40 x 1½"	76	24	23	69	198	43504051/1.5	16
50 x ½"	88	24	28	82	305	43505051/.5	16
63 x 2"	103	29	35	96	480	43506351/2	16
90 x 3"	136	38	49	128	1031	43509051/3	16
110 x 4"	153	44	58	143	1549	43511051/4	16

8. 90° FEMALE ELBOW



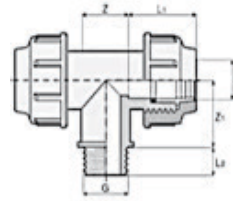
90° Elbow Female Offtake

D x G	L1	L2	Z	Z1	Mass	Code	PN
20 x ½"	50	19	13	28	51	43502053/.5	16
20 x ¾"	57	20	13	28	51	43502053/.75	16
25 x ½"	57	19	13	28	75	43502553/.5	16
25 x ¾"	57	21	15	31	77	43502553/.75	16
32 x ½"	64	19	19	40	122	43503253/.5	16
32 x ¾"	64	21	19	40	122	43503253/.75	16
32 x 1"	64	21	19	40	122	43503253/1	16
40 x ¾"	76	25	23	44	198	43504053/.75	16
40 x 1"	76	25	23	44	198	43504053/1	16
40 x 1½"	76	25	23	51	198	43504053/1.5	16
50 x 1½"	88	25	28	55	316	43505053/1.5	16
63 x 2"	103	30	35	63	582	43506353/2	16
75 x 2½"	118	33	41	73	810	43507553/2.5	16
90 x 3"	136	39	49	87	1213	43509053/5	16
110 x 4"	151	45	60	103	1767	43511053/5	16

Compression Fittings

9. MALE TEE

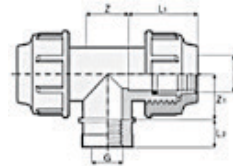
D x G x D	L1	L2	Z	Z1	Mass	Code	PN
20 x ½" x 20	50	18	26	46	82	4350205 4/.5	16
20 x ¾" x 20	50	20	26	46	82	4350205 4/.75	16
25 x ¾" x 25	57	20	30	52	122	4350255 4/1	16
25 x 1" x 25	57	20	30	52	122	4350255 4/1	16
32 x 1" x 32	64	20	38	61	190	4350325 4/1	16
40 x 1½" x 40	76	24	46	69	322	4350405 4/1.5	16
50 x 1½" x 50	88	24	56	82	490	4350505 4/1.5	16
63 x 2" x 63	103	29	70	96	775	4350635 4/2	16



Tee Threaded Male Offtake

10. FEMALE TEE

D x G	L1	L2	Z	Z1	Mass	Code	PN
20 x ½" x 20	50	19	26	27	85	435020 55/.5	16
20 x ¾" x 20	50	19	26	27	85	435020 55/.75	16
25 x ½" x 25	57	19	30	31	127	435025 55/.5	16
25 x ¾" x 25	57	19	30	31	127	435025 55/.75	16
32 x ½" x 32	64	19	38	40	195	435032 55/.5	16
32 x ¾" x 32	64	19	38	40	195	435032 55/.75	16
40 x 1" x 40	76	21	46	44	322	435040 55/1	16
40 x 1½" x 40	76	25	46	50	322	435040 55/1.5	16
50 x 1½" x 50	88	25	56	55	510	435050 55/1.5	16
50 x 2" x 50	88	25	56	55	510	435050 55/2	16
63 x 2" x 63	103	30	70	64	801	435063 55/2	16
75 x 2½" x 75	118	33	82	75	1270	435075 55/2.5	16
90 x 3" x 90	136	36	98	87	1882	435090 55/3	16
110 x 4" x 110	151	40	120	103	2780	435110 55/4	16



Female Threaded Tee

HDPE BUTT WELDING GUIDE

Wall Thickness	Bead Height	Bead Build-up Pressure	Soaking Time	Soaking Pressure	Change Over Time	Pressure Build up Time	Welding Pressure	Cooling Time
(mm)	(mm)	(MPa)	(sec)	(MPa)	(sec)	(sec)	(MPa)	(min)
0 - 45	0.5	0.15	45	≤ 0.02	5	5	0.15 ± 0.01	6
4.5 - 7	1.0	0.15	45 - 70	≤ 0.02	5 - 6	5-6	0.15 ± 0.01	6 - 10
7 - 12	1.5	0.15	70 - 120	≤ 0.02	6 - 8	6-8	0.15 ± 0.01	10 - 16
12 - 19	2.0	0.15	120 - 190	≤ 0.02	8 - 10	8-11	0.15 ± 0.01	16 - 24
19 - 26	2.5	0.15	190 - 260	≤ 0.02	10 - 12	11-14	0.15 ± 0.01	24 - 32
26 - 37	3.0	0.15	260 - 370	≤ 0.02	12 - 16	14-19	0.15 ± 0.01	32 - 45
37 - 50	3.5	0.15	370 - 500	≤ 0.02	16 - 20	19-25	0.15 ± 0.01	45 - 60



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