

**HDPE Pipe Dimensions
SDR 11**

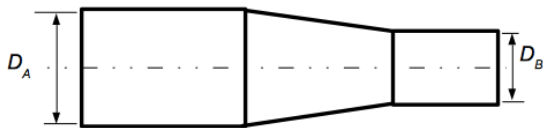
Nominal Size	Outer Diameter			Inside Diameter			Area	
	in.	ft	mm	in.	ft	mm	ft ²	m ²
3/4	1.050	0.0875	26.67	0.859	0.0716	21.83	0.0040	0.00037
1	1.315	0.1096	33.40	1.076	0.0897	27.33	0.0063	0.00059
1 1/4	1.660	0.1383	42.16	1.358	0.1132	34.49	0.0101	0.00093
1 1/2	1.900	0.1583	48.26	1.555	0.1295	39.49	0.0132	0.00122
2	2.375	0.1979	60.33	1.943	0.1619	49.36	0.0206	0.00191
2 1/2	2.875	0.2396	73.03	2.352	0.1960	59.75	0.0302	0.00280
3	3.500	0.2917	88.90	2.864	0.2386	72.74	0.0447	0.00416
3 1/2	4.000	0.3333	101.60	3.273	0.2727	83.13	0.0584	0.00543
4	4.500	0.3750	114.30	3.682	0.3068	93.52	0.0739	0.00687
5	5.563	0.4636	141.30	4.552	0.3793	115.61	0.1129	0.01050
6	6.625	0.5521	168.28	5.421	0.4517	137.68	0.1602	0.01489
8	8.625	0.7188	219.08	7.057	0.5881	179.25	0.2715	0.02523
10	10.750	0.8958	273.05	8.795	0.7330	223.40	0.4217	0.03920
12	12.750	1.0625	323.85	10.432	0.8693	264.97	0.5932	0.05514

**HDPE Pipe Dimensions
Schedule 40**

Nominal Size	Outer Diameter			Inside Diameter			Area	
	in.	ft	mm	in.	ft	mm	ft ²	m ²
3/4	1.050	0.0875	26.67	0.824	0.0687	20.93	0.0037	0.00034
1	1.315	0.1096	33.40	1.049	0.0874	26.64	0.0060	0.00056
1 1/4	1.660	0.1383	42.16	1.380	0.1150	35.04	0.0104	0.00096
1 1/2	1.900	0.1583	48.26	1.610	0.1342	40.90	0.0141	0.00131
2	2.375	0.1979	60.33	2.067	0.1723	52.51	0.0233	0.00216
2 1/2	2.875	0.2396	73.03	2.469	0.2057	62.71	0.0332	0.00309
3	3.500	0.2917	88.90	3.068	0.2556	77.92	0.0513	0.00477
3 1/2	4.000	0.3333	101.60	3.551	0.2959	90.20	0.0687	0.00639
4	4.500	0.3750	114.30	4.026	0.3355	102.26	0.0884	0.00821
5	5.563	0.4636	141.30	5.047	0.4206	128.20	0.1389	0.01290
6	6.625	0.5521	168.28	6.065	0.5054	154.06	0.2005	0.01863
8	8.625	0.7188	219.08	7.981	0.6651	202.72	0.3472	0.03226
10	10.750	0.8958	273.05	10.020	0.8350	254.51	0.5473	0.05085
12	12.750	1.0625	323.85	11.938	0.9948	303.23	0.7769	0.07218

K values for SDR-11 HDPE Pipe Fittings

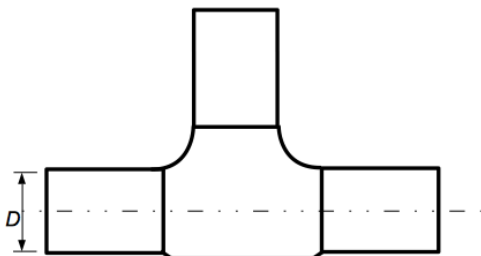
Reducer/Expander



Reducer/Expander K values have been determined for commercially available (from one manufacturer) HDPE "Butt Reducers". The values given in the table below are for SDR-11 piping. The K value depends on the direction of flow and the pipe diameter with which you wish to use the K value. The diameter DA always refers to the larger pipe.

	IPSxIPS	1"x1/2"	1"x3/4"	1 1/4"x 1"	1 1/2"x3/4"	1 1/2" x 1"	2" x 1"	2" x 1 1/4"	2" x 1 1/2"	3" x 2"	4" x 2"	4" x 3"	6" x 4"	8" x 6"
Reducers														
Based on small pipe	K_B	0.08	0.02	0.03	0.20	0.11	0.26	0.15	0.03	0.09	0.23	0.07	0.11	0.09
Based on large pipe	K_A	0.56	0.06	0.08	2.19	0.48	2.75	0.62	0.08	0.44	3.01	0.20	0.52	0.27
Expanders														
Based on small pipe	K_B	0.16	0.03	0.04	0.46	0.19	0.48	0.25	0.04	0.16	0.52	0.09	0.19	0.12
Based on large pipe	K_A	1.13	0.07	0.10	4.94	0.81	5.12	1.04	0.10	0.77	6.71	0.25	0.91	0.36

Tees

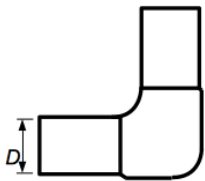


These tees connect three pipes of the same diameter.

K values depend only on if the flow goes straight ($K_{straight}$) or turns (K_{branch})

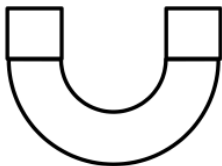
Nominal Size(inch)	3/4" IPS	1" IPS	1 1/4" IPS	1 1/2" IPS	2" IPS	3" IPS	4" IPS	6" IPS	8" IPS
$K_{straight}$	0.38	0.37	0.35	0.35	0.34	0.32	0.31	0.30	0.29
K_{branch}	1.15	1.10	1.06	1.04	1.01	0.96	0.93	0.90	0.88

Elbows



	3/4" IPS	1" IPS	1 1/4" IPS	1 1/2" IPS	2" IPS	3" IPS	4" IPS	6" IPS	8" IPS
	0.57	0.55	0.53	0.52	0.50	0.48	0.47	0.45	0.44

U-bends



3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
1.73	1.61	1.48	1.42	1.33	1.27
3"	3 1/2"	4"	5"	6"	8"
1.20	1.16	1.12	1.07	1.03	0.97

Notes

1. The initial gathering of data and spreadsheet calculations were done by Xiang He in 2011.
2. For all fittings, the relations given in Crane Company Technical Paper 410 were used to calculate the K values.
3. For the reducers and expanders, the actual dimensions of commercially available (from www.performancepipe.com) fittings were used to calculate the K values. For all other fittings, the K values are calculated based on standard fittings and relations that rely on the fully turbulent friction factor.
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