

# Pipe Dimensions - Pipe Properties

## Schedule 40 PVC

<i>Nominal Pipe Size (in)</i>	<i>O.D.</i>	<i>Average I.D.</i>	<i>Min. Wall</i>	<i>Nominal Wt./Ft.</i>	<i>Max. W.P. PSI</i>
1/8	.405	.261	.068	.045	810
1/4	.540	.354	.088	.081	780
3/8	.675	.483	.091	.109	620
1/2	.840	.608	.109	.161	600
3/4	1.050	.810	.113	.214	480
1	1.315	1.033	.133	.315	450
1-1/4	1.660	1.364	.140	.426	370
1 -1/2	1.900	1.592	.145	.509	330
2	2.375	2.049	.154	.682	280
2-1/2	2.875	2.445	.203	1.076	300
3	3.500	3.042	.216	1.409	260
3-1/2	4.000	3.520	.226	1.697	240
4	4.500	3.998	.237	2.006	220
5	5.563	5.017	.258	2.726	190
6	6.625	6.031	.280	3.535	180
8	8.625	7.943	.322	5.305	160
10	10.750	9.976	.365	7.532	140
12	12.750	11.890	.406	9.949	130
14	14.000	13.072	.437	11.810	130
16	16.000	14.940	.500	15.416	130
18	18.000	16.809	.562	20.112	130
20	20.000	18.743	.593	23.624	120
24	24.000	22.544	.687	32.873	120

## Schedule 80 PVC

<i>Nominal Pipe Size (in)</i>	<i>O.D.</i>	<i>Average I.D.</i>	<i>Min. Wall</i>	<i>Nominal Wt./Ft.</i>	<i>Max. W.P. PSI</i>
1/8	.405	.203	.095	.058	1230
1/4	.540	.288	.119	.100	1130
3/8	.675	.407	.126	.138	920
1/2	.840	.528	.147	.202	850
3/4	1.050	.724	.154	.273	690
1	1.315	.935	.179	.402	630
1-1/4	1.660	1.256	.191	.554	520
1 -1/2	1.900	1.476	.200	.673	470
2	2.375	1.913	.218	.932	400
2-1/2	2.875	2.289	.276	1.419	420
3	3.500	2.864	.300	1.903	370
3-1/2	4.000	3.326	.318	2.322	350
4	4.500	3.786	.337	2.782	320
5	5.563	4.767	.375	3.867	290
6	6.625	5.709	.432	5.313	280
8	8.625	7.565	.500	8.058	250
10	10.750	9.492	.593	11.956	230
12	12.750	11.294	.687	16.437	230
14	14.000	12.410	.750	19.790	220
16	16.000	14.214	.843	25.430	220
18	18.000	16.014	.937	31.830	220
20	20.000	17.814	1.031	40.091	220
24	24.000	21.418	1.218	56.882	210

### Schedule 120 PVC

<i>Nominal Pipe Size (in)</i>	<i>O.D.</i>	<i>Average I.D.</i>	<i>Min. Wall</i>	<i>Nominal Wt./Ft.</i>	<i>Max. W.P. PSI</i>
1/2	.840	.480	.170	.223	1010
3/4	1.050	.690	.170	.295	770
1	1.315	.891	.200	.440	720
1-1/4	1.660	1.204	.215	.614	600
1 -1/2	1.900	1.423	.225	.744	540
2	2.375	1.845	.250	1.052	470
2-1/2	2.875	2.239	.300	1.529	470
3	3.500	2.758	.350	2.184	440
4	4.500	3.572	.437	3.516	430
6	6.625	5.434	.562	6.759	370

### SDR 21 WP 200 PSI

<i>Nominal Pipe Size (in)</i>	<i>O.D.</i>	<i>Average I.D.</i>	<i>Min. Wall</i>	<i>Nominal Wt./Ft.</i>
3/4	1.050	.910	.060	.129
1	1.315	1.169	.063	.170
1-1/4	1.660	1.482	.079	.263
1-1/2	1.900	1.700	.090	.339
2	2.375	2.129	.113	.521
2-1/2	2.875	2.581	.137	.754
3	3.500	3.146	.167	1.106
3-1/2	4.000	3.596	.190	1.443
4	4.500	4.046	.214	1.825
5	5.563	5.001	.265	2.792
6	6.625	5.955	.316	3.964
8	8.625	7.755	.410	6.679

### SDR 26 WP 160 PSI

<i>Nominal Pipe Size (in)</i>	<i>O.D.</i>	<i>Average I.D.</i>	<i>Min. Wall</i>	<i>Nominal Wt./Ft.</i>
1	1.315	1.175	.060	.164
1-1/4	1.660	1.512	.064	.221
1-1/2	1.900	1.734	.073	.284
2	2.375	2.173	.091	.432
2-1/2	2.875	2.635	.110	.622
3	3.500	3.210	.135	.915
3-1/2	4.000	3.672	.154	1.183
4	4.500	4.134	.173	1.494
5	5.563	5.109	.214	2.288
6	6.625	6.085	.255	3.228
8	8.625	7.921	.332	5.468
10	10.750	9.874	.413	8.492
12	12.750	11.710	.490	11.956
14	14.000	12.860	.538	14.430
16	16.000	14.696	.615	18.810
18	18.000	16.534	.692	23.860
20	20.000	18.370	.769	29.470
24	24.000	22.043	.923	42.520

### SDR 41 WP 100 PSI

<i>Nominal Pipe Size (in)</i>	<i>O.D.</i>	<i>Average I.D.</i>	<i>Min. Wall</i>	<i>Nominal Wt./Ft.</i>
18	18.000	17.070	.439	15.370
20	20.000	18.970	.488	18.920
24	24.000	22.748	.585	27.320

<b>Physical Properties of PVC Pipe</b>	<b>Value</b>	<b>Test Method</b>
<b>GENERAL</b>		
Cell Classification	12454	ASTM D1784
Maximum Service Temperature	140°F	
Color	white, dark gray	
Water Absorption % increase 24hrs @ 25°C	.05	ASTM D570
Hardness, Rockwell	110-120	ASTM D785
Poisson's Ratio @ 73°F	.410	
Hazen-Williams Factor	C=150	
<b>MECHANICAL</b>		
Specific Gravity (g/cu,cm)	1.40 ± .02	ASTM D792
Tensile Strength, psi @ 73°F	7,450	ASTM D638
Modulus of Elasticity, psi @ 73°F (Tensile Modulus)	420,000	ASTM D638
Flexural Strength, psi @ 73°F	14,450	ASTM D790
Compressive Strength, psi @ 73°F	9,600	ASTM D695
Izod Impact, ft-lb./in. @ 73°F	.75	ASTM D256
<b>THERMAL</b>		
Coefficient of Linear Expansion (in/in/°F)	2.9 x 10 (to -5)	ASTM D696
Coefficient of Thermal Conductivity (BTU/in/hr/ft/°F)	3.5	ASTM C177
Heat Distortion Temperature, °F @ 264 psi	170	ASTM D648
Specific Heat, Cal/°C/gm	.25	ASTM D2766
<b>ELECTRICAL</b>		
Dielectric Strength, V/mil	1,413	ASTM D149
Dielectric Constant, 60 Hz, 30°F	3.7	ASTM D150
Volume Resistivity, ohm/cm @ 95°C, ohms/cm	1.2 x 10 (to 12)	ASTM D257
Harvel PVC Pipe is non-electrolytic		

<b>FLAMMABILITY</b>		
Flammability Rating	V-0	UL 94
Flame Spread Index	<10	ASTM E162
Flame Spread	0-25 10-25	ULC ASTM E84
Flash Ignition Temp	730°F	
Average Time of Burning (sec.)	<5	ASTM D635
Average Extent of Burning (mm)	<10	
Burning Rate (in/min)	Self Extinguishing	
Softening Starts, (approx.)	250°F	
Material Becomes Viscous	350°F	
Material Carbonizes	425°F	
Smoke Generation	80-225 600-1000	ULC ASTM E84

Hazen & Williams - Friction Factor C			
Type of Pipe	Values of C		
	Range High = Best Low = Poor	Average Value for Clean, New Pipe	Commonly Used Value for Design Purposes
Cement- Asbestos	160-140	150	140
Fiber	-	150	140
Bitumastic-enamel-lined ironed or steel centrifugally applied	160-130	148	140
Cement-lined iron or steel centrifugally applied	-	150	140
Copper, brass, lead, tin or glass pipe and tubing	150-120	140	130
Wood-stave	145-110	120	110
Welded and seamless steel	150-80	130	100
Interior riveted steel	-	139	100
Wrought-iron, cast-iron	150-80	130	100
Tar-coated cast-iron	145-50	130	100
Girth-riveted steel	-	130	100
Concrete	152-85	120	100
Full-riveted steel	-	115	100
Vitrified, spiral-riveted steel (flow with lap)	-	110	100
Spiral-riveted steel (flow against lap)	-	100	90
Corrugated steel	-	60	60

**PVC pipe has a friction factor averaging 146**

<i>Values of C</i>	150	140	130	120	110	100	90	80	70	60
<b>Multiplier (Basis C = 100)</b>	.47	.54	.62	.71	.84	1.0	1.22	1.50	1.93	2.57