

# PVC PIPE

## ENGINEERING DATA



### Pressure/Temperature Relationship

MAXIMUM OPERATING PRESSURE — PSI (WATER @ 73°F)

Nominal Pipe Size (IPS)	Schedule 40 PVC and CPVC	Schedule 80 PVC			Schedule 80 CPVC	SDR Pressure Rated Pipe <sup>4</sup> PVC Plain and Belled End		
	Plain & Belled <sup>1</sup>	Plain End	Threaded <sup>2</sup>	Roll Grooved	Plain End <sup>3</sup>	SDR 26	SDR 21	SDR 13.5
1/4"	NA	1130	NA	NA	NA	NA	NA	NA
1/2"	600	850	420	NA	850	NA	NA	315
3/4"	480	690	340	NA	690	NA	200	—
1"	450	630	320	NA	630	NA	200	—
1 1/4"	370	520	260	NA	520	160	200	—
1 1/2"	330	470	240	NA	470	160	200	—
2"	280	400	200	400	400	160	200	—
2 1/2"	300	420	210	420	420	160	200	—
3"	260	370	190	370	370	160	200	—
4"	220	320	160	320	320	160	200	—
5"	190	290	NR	290	290	160	200	—
6"	180	280	NR	280	280	160	200	—
8"	160	250	NR	250	250	160	200	—
10"	140	230	NR	230	230	160	200	—
12"	130	230	NR	230	230	160	200	—
14"	130	220	NR	220	NA	160	200	—
16"	130	220	NR	220	NA	160	200	—

(NR-Not Recommended)  
(NA-Not Available)

1. Threading Schedule 40 and SDR/PR pipe is not recommended.
2. Threading Schedule 80 pipe above 4" is not recommended.

3. CPVC threaded connections should be avoided when possible at elevated temperatures and pressures. (Consult factory.)
4. Standard dimensional ratio pipe (SDR) will carry the same pressure rating for all diameters according to the SDR number.

The operating pressures listed above are based on the hydrostatic design of the product using water as a test medium at 73°F. Compounding nomenclature for Esilon PVC is PVC 1120 with a cell class of 12454-B. For Esilon CPVC pipe it is CPVC 4120 with a cell class of 23447-A.

For schedule-rated products and SDR/PR pipe, the following equation was used to determine operating pressures for outside diameter controlled pipe:

$$P = \frac{2ST}{D - T}$$

Where: P = pressure (PSI)  
D = average outside diameter  
T = minimum wall thickness  
S = hydrostatic design stress (HDS) for Esilon PVC Type I, Grade 1, HDS = 2,000 PSI  
Esilon CPVC also = 2,000 PSI

The following temperature corrections must be used to derate all PVC and CPVC pipe, valves and fittings when operating temperatures are expected to exceed 73°F.

The working pressure of PVC and CPVC pipe is directly affected by temperature changes. When the operating temperature of the pipe increases, the pipe loses its stiffness and tensile strength decreases. A drop in pressure capacity results. The drop can be calculated using this chart. Multiply the pipe's maximum working pressure by the temperature correction factor for a known temperature.

**Example:** For 2" Schedule 80 PVC pipe, the maximum working pressure is 400 psi. If the operating temperature is known to be 110°F, the correction factor can be found on the chart to be 0.50. The adjusted pressure would then be 400 × 0.50 = 200 psi.

### TEMPERATURE CORRECTION FACTORS

Operating Temperature (°F)	70	80	90	100	110	115	120	125	130	140	150	160	170	180	200
PVC 1120	1.00	.88	.75	.62	.50	.45	.40	.35	.30	.22	Not Recommended				
CPVC 4120	1.00	1.00	.91	.82	.77	.74	.65	.66	.62	.50	.47	.40	.32	.25	.20

CAUTION: Esilon Thermoplastics does not recommend its products for use in air or compressed gas systems.

## PVC Type I Pressure Rated Pipe

FOR WATER MAINS, IRRIGATION, ETC.

SDR 26 NSF — W.P. 160 PSI (Water @ 73.4° F.)

SDR 21 NSF — W.P. 200 PSI (Water @ 73.4° F.)

Nominal Pipe Size (in.)	O.D.	Min. Wall	Average I.D.	Nominal Weight per ft.
1/2	See SDR 13.5			
3/4	See SDR 21			
1	1.315	.060	1.175	.164
1-1/4	1.660	.064	1.512	.221
1-1/2	1.900	.073	1.734	.284
2	2.375	.091	2.173	.432
2-1/2	2.875	.110	2.635	.622
3	3.500	.135	3.210	.915
3-1/2	4.000	.154	3.672	1.183
4	4.500	.173	4.134	1.494
5	5.563	.214	5.109	2.288
6	6.625	.255	6.085	3.228
8	8.625	.332	7.921	5.468
10	10.750	.413	9.874	8.492
12	12.750	.490	11.710	11.956

Nominal Pipe Size (in.)	O.D.	Min. Wall	Average I.D.	Nominal Weight per ft.
1/2	See SDR 13.5			
3/4	1.050	.060	.910	.129
1	1.315	.063	1.169	.170
1-1/4	1.660	.079	1.482	.263
1-1/2	1.900	.090	1.700	.339
2	2.375	.113	2.129	.521
2-1/2	2.875	.137	2.581	.754
3	3.500	.167	3.146	1.106
3-1/2	4.000	.190	3.596	1.443
4	4.500	.214	4.046	1.825
5	5.563	.265	5.001	2.792
6	6.625	.316	5.955	3.964

For additional information call: 610-275-4453 or Fax: 610-279-6299  
Please call for current prices.