

HYDROSEAL CANADA 1" ASTM

1" ASTM F-441 SCH80 CPVC

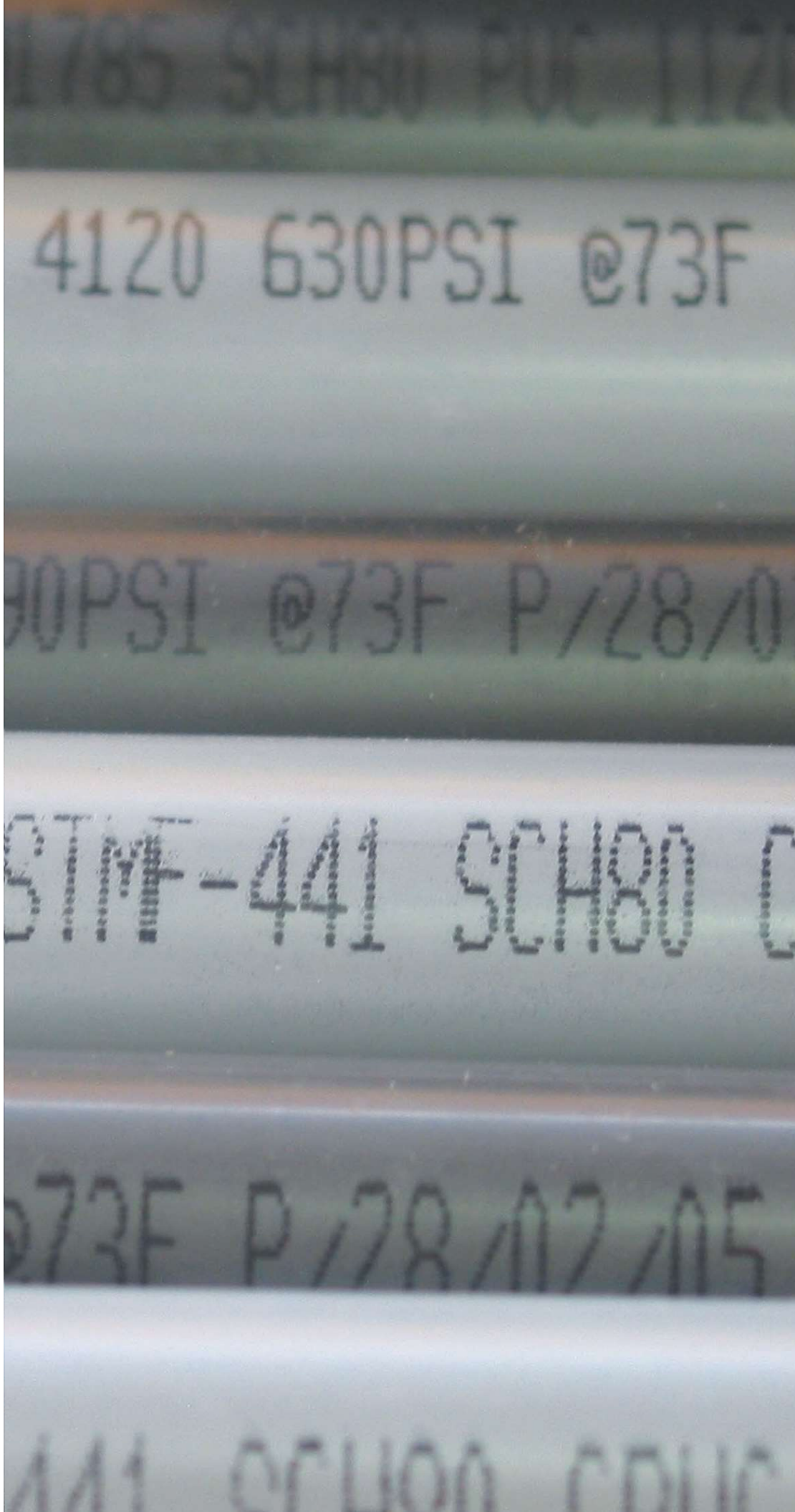
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HYDROSEAL CANADA 3/4" A

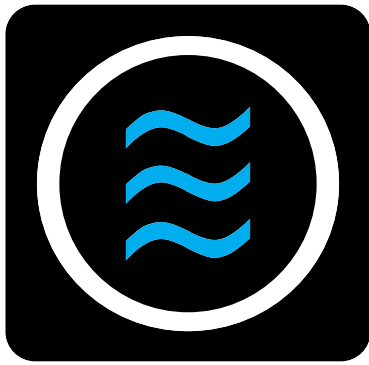
SCH80 PVC 1120 850 PST



CANADA 1 1/2" ASTM F-



PVC AND CPVC TUBES



Tubes

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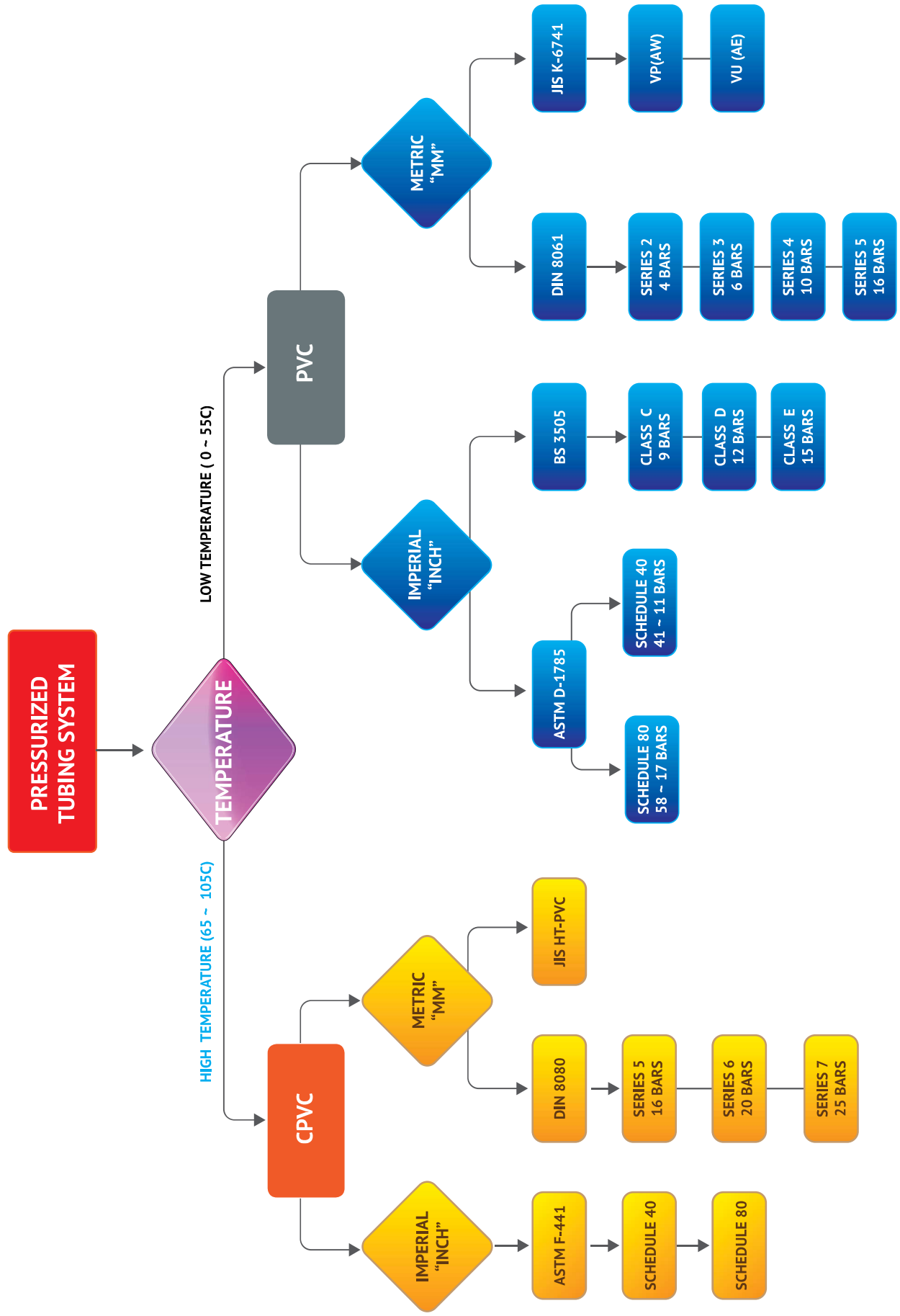
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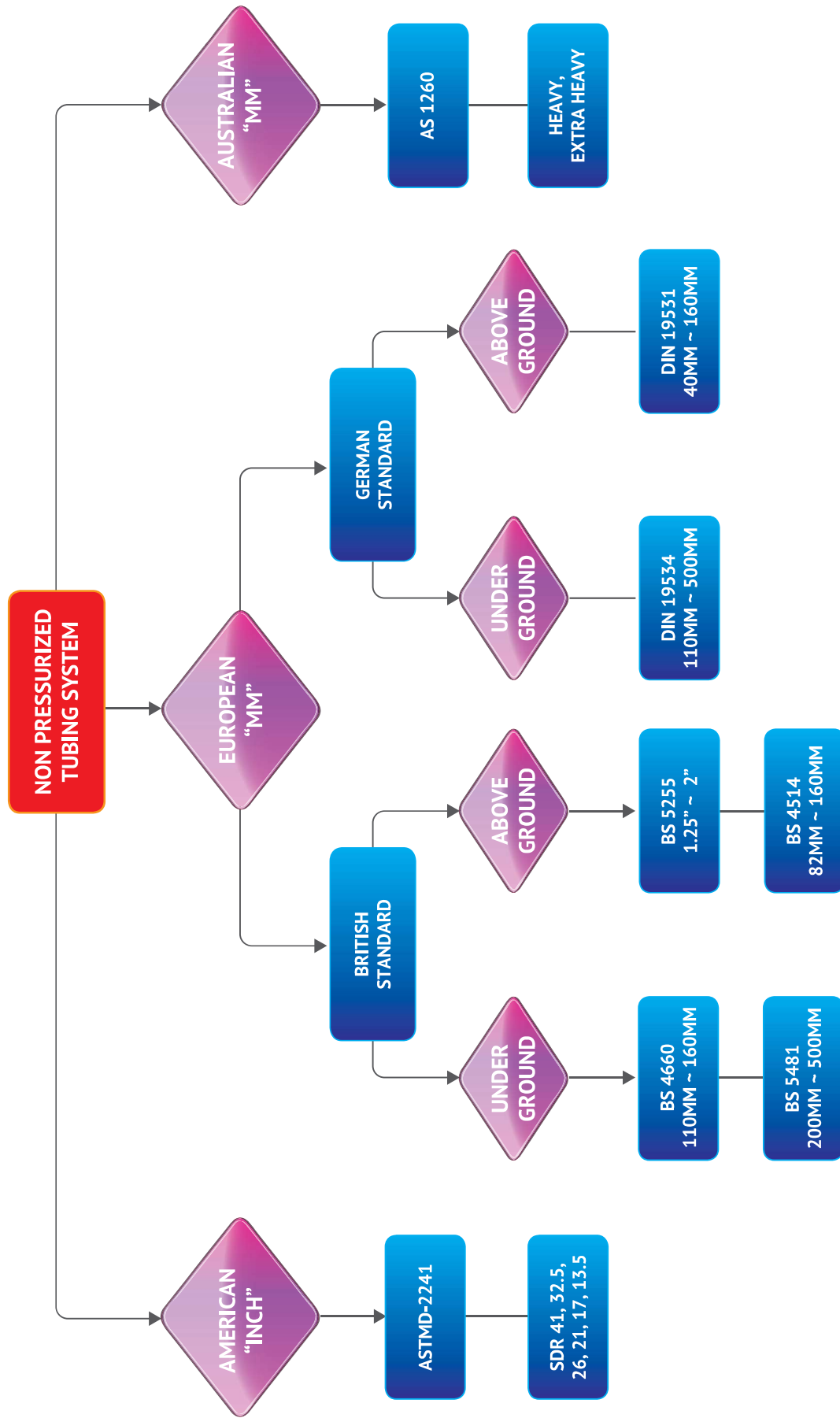
PVC AND CPVC PRESSURE TUBES

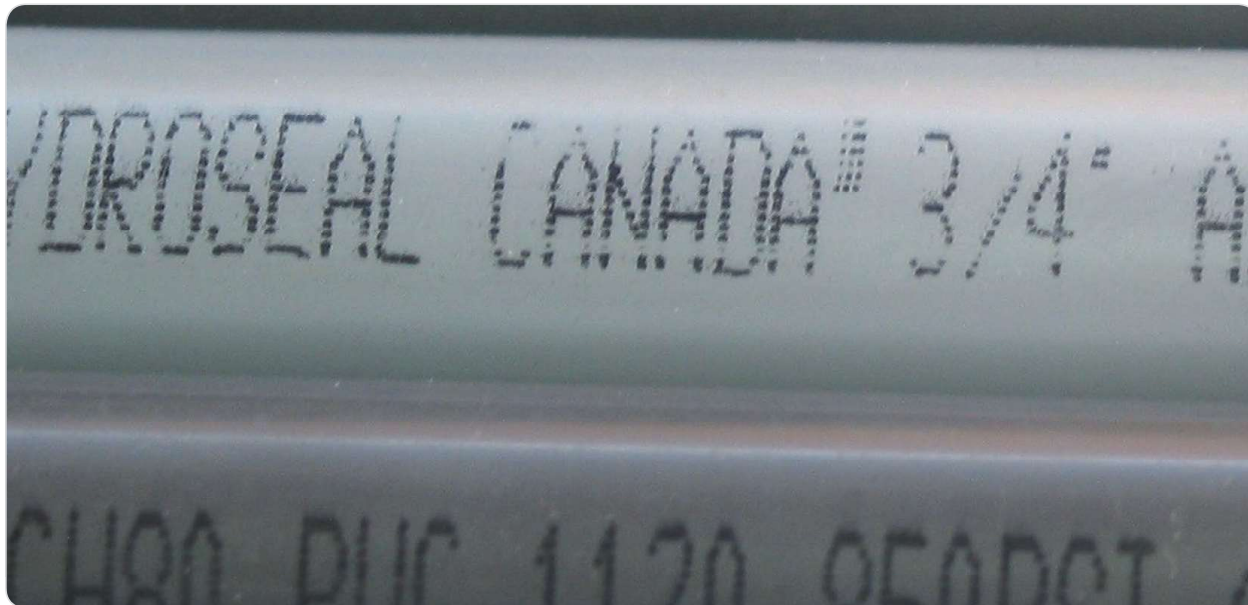
Selection Chart



PVC SEWERAGE TUBES

Selection Chart





Manufacturer's Product Specification

Scope

This specification sheet covers the manufacturer's requirements for PVC and CPVC tubes in accordance with respective international standards. These tubes meet or exceed the standards set by the American Society for Testing and Materials, the National Sanitation Foundation, British Standards Institute, German Industrial Norms and Japanese Industrial Standards.

Dimensions and Wall Thicknesses

Physical dimensions, wall thickness and tolerances of PVC and CPVC tubes meet the requirements of ASTM, DIN and BS specifications for tubes.

PVC and CPVC Materials

Rigid PVC (polyvinyl chloride) and CPVC (chlorinated polyvinyl chloride) used in the manufacture of tubes is Type I, Grade 1 PVC compound, and Type IV, Grade 1 CPVC compound as stated in ASTM D-1784. Raw material used in extrusion shall contain the specified amounts of color pigment, stabilizers, and other additives approved by the National Sanitation Foundation.

Marking

PVC and CPVC tubes are marked as prescribed in ASTM D-1784 to indicate the manufacturer's name or trademark, size of Tube, material designation, batch number and month of production. There must be clear distinguishing on those products that are PVC and those products that are CPVC. Where there is no restriction of space, wall thicknesses shall also be indicated.

Outside Dimensions

MEAN OUTSIDE DIAMETER COMPARISONS (MM)				
SIZE	ASTM D-1784	BS 3505	DIN 8061	JIS K-6741
1/2"	21.34	21.34	20.00	21.34
3/4"	26.67	26.67	25.00	26.67
1"	33.40	33.40	32.00	32.00
1 1/4"	42.16	42.16	40.00	38.00
1 1/2"	48.26	48.26	50.00	48.26
2"	60.33	60.33	63.00	60.33
2 1/2"	73.03	75.00	75.00	76.00
3"	88.90	88.90	90.00	88.90
4"	114.30	114.30	110.00	114.30
5"	141.30	140.00	140.00	140.00
6"	168.28	168.28	160.00	165.00
8"	219.08	219.08	200.00	216.00

Figures in Cyan typeface indicate matching Outer Dimensions

Wall Thicknesses

MEAN OUTSIDE DIAMETER COMPARISONS (MM)				
SIZE	ASTM D-1784 SCH 80	BS 3505 CLASS E	DIN 8061 SR5"PN16"	JIS K-6741 VP (AW)
1/2"	3.73	1.70	1.50	2.70
3/4"	3.91	1.90	1.90	2.70
1"	4.54	2.20	2.40	3.10
1 1/4"	4.85	2.70	3.00	3.10
1 1/2"	5.08	3.10	3.70	3.60
2"	5.54	3.90	4.70	4.10
2 1/2"	7.01	4.80	5.60	4.10
3"	7.62	5.70	6.70	5.50
4"	8.56	7.30	8.20	6.60
5"	9.53	9.00	10.40	8.90
6"	10.97	10.80	11.90	8.90
8"	12.70	12.60	14.90	10.30

Notes: PVC/CPVC material meets ASTM Standard D-1784
Dimensions are subject to change without notice. Contact your HYDROSEAL representative for certification.

PVC TUBE PHYSICAL PROPERTIES

GENERAL	VALUE	TEST METHOD
Cell Classification	12454	ASTM D1784
Maximum Service Temp.	140°F	
Color	White, Dark Gray	
Specific Gravity, (g/cu.cm @ 73°F)	1.40 +/-02	ASTM D792
Water Absorption % increase 24 hrs @ 25°C	0.05	ASTM D570
Hardness, Rockwell	110 - 120	ASTM D785
Poisson's Ratio @ 73°F	0.410	
Hazen-Williams Factor	C =150	
MECHANICAL		
Tensile Strength, psi @ 73°F	7,450	ASTM D638
Tensile Modulus of Elasticity, psi @ 73°F	420,000	ASTM D638
Flexural Strength, psi @ 73°F	14,450	ASTM D790
Flexural Modulus, psi @ 73°F	360,000	ASTM D790
Compressive Strength, psi @ 73°F	9,600	ASTM D695
Izod Impact, notched, ft-lb/in @ 73°F	0.75	ASTM D256
THERMAL		
Coefficient of Linear Expansion (in/in/°F)	2.9×10^{-5}	ASTM D696
Coefficient of Thermal Conductivity (Cal.)(cm)/(cm ²)(Sec.)(°C) BTU/in/hr/ft.2/°F Watt/m ² K	3.5×10^{-4} 1.02 0.147	ASTM C177
Heat Deflection Temperature Under Load (264 psi, annealed)	170	ASTM D648
Specific Heat, Cal./°C/gm	0.25	ASTM D2766
ELECTRICAL		
Dielectric Strength, volts/mil	1,413	ASTM D149
Dielectric Constant, 60Hz, 30°F	3.70	ASTM D150
Volume Resistivity, ohm/cm @ 95°C	1.2×10^{12}	ASTM D257
Harvel PVC tube is non-electrolytic		
FIRE PERFORMANCE		
Flammability Rating	V-0	UL-94
Flame Spread Index	<10	
Flame Spread	0-25	ULC
Smoke Generation	80-225	ULC
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	
Limiting Oxygen Index (LOI)	43	ASTM D2863
Clean Room Materials Flammability Test	N/A	FM 4910

Note: The physical properties shown are considered general PVC physical properties. HYDROSEAL utilizes several PVC compounds for the production of different PVC product lines. PVC compounds may exhibit slight variations in actual physical properties as compared to those stated. Contact your HYDROSEAL representative for additional information if necessary

Notes: PVC/CPVC material meets ASTM Standard D-1784
Dimensions are subject to change without notice. Contact your HYDROSEAL representative for certification.

CPVC TUBE PHYSICAL PROPERTIES

GENERAL	VALUE	TEST METHOD
Cell Classification	23447	ASTM D1784
Maximum Service Temp.	200°F	
Color	Medium Gray	
Specific Gravity, (g/cu.cm @ 73°F)	1.52 ± 0.02	ASTM D792
Water Absorption % increase 24 hrs @ 25°C	0.03	ASTM D570
Hardness, Rockwell	117	ASTM D785
Poisson's Ratio @ 73°F	0.386	
Hazen-Williams Factor	C =150	
MECHANICAL		
Tensile Strength, psi @ 73°F	7,750	ASTM D638
Tensile Modulus of Elasticity, psi @ 73°F	360,000	ASTM D638
Flexural Strength, psi @ 73°F	13,000	ASTM D790
Flexural Modulus, psi @ 73°F	360,000	ASTM D790
Compressive Strength, psi @ 73°F	10,000	ASTM D695
Compressive Modulus, psi @ 73°F	196,000	ASTM D695
Izod Impact, notched, ft-lb/in @ 73°F	2.0	ASTM D256
THERMAL		
Coefficient of Linear Expansion (in/in/°F)	3.7×10^{-5}	ASTM D696
Coefficient of Thermal Conductivity (Cal.)(cm)/(cm ²)(Sec.)(°C) BTU/in/hr/ft.2/°F Watt/m ² /K	3.27×10^{-4} 0.95 0.137	ASTM C177
Coefficient of Linear Expansion (in/in/°F)	226°F	ASTM D648
ELECTRICAL		
Dielectric Strength, volts/mil	1,250	ASTM D149
Dielectric Constant, 60Hz, 30°F	3.70	ASTM D150
Volume Resistivity, ohm/cm @ 73°F	3.4×10^{15}	ASTM D257
Power Factor, 1000Hz	0.007%	ASTM D150
Harvel CPVC Tube is non-electrolytic		
FIRE PERFORMANCE		
Flammability Rating	V-0, 5VB, 5VA	UL-94
Flame Spread Index	<10	
Flame Spread	<25	ASTM E-84/UL 723
	<25	ULC
Smoke Generation	≤50	ASTM E-84/UL 723
	<50	ULC
Flash Ignition Temp.	900°F	
Average Time of Burning (sec.)	<5	ASTM D635
Average Extent of Burning (mm)	<10	
Burning Rate (in/min)	Self Extinguishing	
Softening Starts (approx.)	295°F	
Material Becomes Viscous	395°F	
Material Carbonizes	450°F	
Limiting Oxygen Index (LOI)	60	ASTM D2863
Clean Room Materials Flammability Test	FPI= 1.20 SDI= 0.09	FM 4910

Note: The physical properties shown are considered general CPVC physical properties. HYDROSEAL utilizes several CPVC compounds for the production of different CPVC product lines. CPVC compounds may exhibit slight variations in actual physical properties as compared to those stated. Contact your HYDROSEAL representative for additional information if necessary.

Notes: PVC/CPVC material meets ASTM Standard D-1784
Dimensions are subject to change without notice. Contact your HYDROSEAL representative for certification.

PVC ASTM D1785 SCHEDULE 40

PART	NOMINAL SIZE	OUTSIDE DIAMETER		PVC SCHEDULE 40			
				WALL THICKNESS		WORKING PRESSURE	
				IN	MM	IN	MM
0205.40G.0015	1/8"	0.41	10.41	0.068	1.73	810	0.05
0205.40G.0025	1/4"	0.54	13.72	0.088	2.24	780	0.09
0205.40G.0035	3/8"	0.68	17.15	0.115	2.92	620	0.12
0205.40G.0050	1/2"	0.84	21.34	0.109	2.77	600	0.17
0205.40G.0075	3/4"	1.05	26.67	0.113	2.87	480	0.23
0205.40G.0100	1"	1.32	33.40	0.133	3.38	450	0.33
0205.40G.0125	1 1/4"	1.66	42.16	0.140	3.56	370	0.45
0205.40G.0150	1 1/2"	1.90	48.26	0.145	3.68	330	0.54
0205.40G.0200	2"	2.38	60.33	0.154	3.91	280	0.72
0205.40G.0250	2 1/2"	2.88	73.03	0.203	5.16	300	1.14
0205.40G.0300	3"	3.50	88.90	0.216	5.49	260	1.49
0205.40G.0400	4"	4.50	114.30	0.237	6.02	220	2.12
0205.40G.0500	5"	5.56	141.30	0.258	6.55	190	2.87
0205.40G.0600	6"	6.63	168.28	0.280	7.11	180	3.73
0205.40G.0800	8"	8.63	219.08	0.322	8.18	160	5.62
0205.40G.1000	10"	10.75	273.05	0.365	9.27	140	7.97
0205.40G.1200	12"	12.75	323.85	0.406	10.31	130	10.53
0205.40G.1400	14"	14.00	355.60	0.438	11.13	130	12.46
0205.40G.1600	16"	16.00	406.40	0.500	12.70	130	16.29
0205.40G.1800	18"	18.00	457.20	0.562	14.27	130	20.59
0205.40G.2000	20"	20.00	508.00	0.593	15.06	120	24.18
0205.40G.2400	24"	24.00	609.60	0.687	17.45	120	33.65

DERATING FACTOR

PVC	
TEMP(C)	FACTOR
73	1.00
80	0.88
90	0.75
100	0.62
110	0.51
120	0.40
130	0.31
140	0.22

CPVC ASTM F441 SCHEDULE 40

PART	NOMINAL SIZE	OUTSIDE DIAMETER		CPVC SCHEDULE 40			
				WALL THICKNESS		WORKING PRESSURE	WEIGHT
				IN	MM	IN	MM
0206.40G.0025	1/4"	0.54	13.72	0.088	2.24	195	0.10
0206.40G.0035	3/8"	0.68	17.15	0.115	2.92	155	0.13
0206.40G.0050	1/2"	0.84	21.34	0.109	2.77	150	0.19
0206.40G.0075	3/4"	1.05	26.67	0.113	2.87	120	0.25
0206.40G.0100	1"	1.32	33.40	0.133	3.38	113	0.37
0206.40G.0125	1 1/4"	1.66	42.16	0.140	3.56	93	0.50
0206.40G.0150	1 1/2"	1.90	48.26	0.145	3.68	83	0.60
0206.40G.0200	2"	2.38	60.33	0.154	3.91	70	0.80
0206.40G.0250	2 1/2"	2.88	73.03	0.203	5.16	75	1.27
0206.40G.0300	3"	3.50	88.90	0.216	5.49	65	1.66
0206.40G.0400	4"	4.50	114.30	0.237	6.02	55	2.36
0206.40G.0600	6"	6.63	168.28	0.280	7.11	45	4.16
0206.40G.0800	8"	8.63	219.08	0.322	8.18	40	6.27
0206.40G.1000	10"	10.75	273.05	0.365	9.27	35	8.89
0206.40G.1200	12"	12.75	323.85	0.406	10.31	33	11.75
0206.40G.1400	14"	14.00	355.60	0.438	11.13	33	13.92
0206.40G.1600	16"	16.00	406.40	0.500	12.70	33	18.17
0206.40G.1800	18"	18.00	457.20	0.562	14.27	33	22.97
0206.40G.2000	20"	20.00	508.00	0.593	15.06	30	29.98
0206.40G.2400	24"	24.00	609.60	0.687	17.45	30	37.54

DERATING FACTOR

CPVC	
TEMP(C)	FACTOR
73	1.00
80	1.00
90	0.91
100	0.82
110	0.72
120	0.65
130	0.57
140	0.50
150	0.42
160	0.40
170	0.29
180	0.25
200	0.20

Notes: PVC/CPVC material meets ASTM Standard D-1784
 Dimensions are subject to change without notice. Contact your HYDROSEAL representative for certification.

PVC ASTM D1785 SCHEDULE 80

PART	NOMINAL SIZE	OUTSIDE DIAMETER		PVC SCHEDULE 80			
				WALL THICKNESS		WORKING PRESSURE	WEIGHT
				IN	MM	PSI @73F	
0207.80G.0015	1/8"	0.41	10.41	0.095	2.41	1230	0.06
0207.80G.0025	1/4"	0.54	13.72	0.119	3.02	1130	0.10
0207.80G.0035	3/8"	0.68	17.15	0.126	3.20	920	0.14
0207.80G.0050	1/2"	0.84	21.34	0.147	3.73	850	0.21
0207.80G.0075	3/4"	1.05	26.67	0.154	3.91	690	0.28
0207.80G.0100	1"	1.32	33.40	0.179	4.55	630	0.41
0207.80G.0125	1 1/4"	1.66	42.16	0.191	4.85	520	0.57
0207.80G.0150	1 1/2"	1.90	48.26	0.200	5.08	470	0.69
0207.80G.0200	2"	2.38	60.33	0.218	5.54	400	0.96
0207.80G.0250	2 1/2"	2.88	73.03	0.276	7.01	420	1.46
0207.80G.0300	3"	3.50	88.90	0.300	7.62	370	1.95
0207.80G.0400	4"	4.50	114.30	0.337	8.56	320	2.84
0207.80G.0500	5"	5.56	141.30	0.375	9.53	290	3.95
0207.80G.0600	6"	6.63	168.28	0.432	10.97	280	5.43
0207.80G.0800	8"	8.63	219.08	0.500	12.70	250	8.25
0207.80G.1000	10"	10.75	273.05	0.593	15.06	230	12.24
0207.80G.1200	12"	12.75	323.85	0.687	17.45	230	16.83
0207.80G.1400	14"	14.00	355.60	0.750	19.05	220	19.96
0207.80G.1600	16"	16.00	406.40	0.843	21.41	220	26.55
0207.80G.1800	18"	18.00	457.20	0.937	23.80	220	33.54
0207.80G.2000	20"	20.00	508.00	1.031	26.19	220	41.05
0207.80G.2400	24"	24.00	609.60	1.218	30.94	210	58.23

DERATING FACTOR

PVC	
TEMP(C)	FACTOR
73	1.00
80	0.88
90	0.75
100	0.62
110	0.51
120	0.40
130	0.31
140	0.22

CPVC ASTM F441 SCHEDULE 80

PART	NOMINAL SIZE	OUTSIDE DIAMETER		CPVC SCHEDULE 80			
				WALL THICKNESS		WORKING PRESSURE	WEIGHT
				IN	MM	PSI @180F	
0208.80G.0025	1/4"	0.54	13.72	0.119	3.02	283	0.12
0208.80G.0035	3/8"	0.68	17.15	0.126	3.20	230	0.16
0208.80G.0050	1/2"	0.84	21.34	0.147	3.73	213	0.24
0208.80G.0075	3/4"	1.05	26.67	0.154	3.91	173	0.32
0208.80G.0100	1"	1.32	33.40	0.179	4.55	158	0.47
0208.80G.0125	1 1/4"	1.66	42.16	0.191	4.85	130	0.65
0208.80G.0150	1 1/2"	1.90	48.26	0.200	5.08	118	0.79
0208.80G.0200	2"	2.38	60.33	0.218	5.54	100	1.10
0208.80G.0250	2 1/2"	2.88	73.03	0.276	7.01	105	1.67
0208.80G.0300	3"	3.50	88.90	0.300	7.62	93	2.24
0208.80G.0400	4"	4.50	114.30	0.337	8.56	80	3.28
0208.80G.0600	6"	6.63	168.28	0.432	10.97	70	6.26
0208.80G.0800	8"	8.63	219.08	0.500	12.70	63	9.51
0208.80G.1000	10"	10.75	273.05	0.593	15.06	58	14.10
0208.80G.1200	12"	12.75	323.85	0.687	17.45	58	19.39
0208.80G.1400	14"	14.00	355.60	0.750	19.05	55	23.26
0208.80G.1600	16"	16.00	406.40	0.843	21.41	55	29.89
0208.80G.1800	18"	18.00	457.20	0.937	23.80	55	37.42
0208.80G.2000	20"	20.00	508.00	1.031	26.19	55	45.88
0208.80G.2400	24"	24.00	609.60	1.218	30.94	53	64.96

DERATING FACTOR

CPVC	
TEMP(C)	FACTOR
73	1.00
80	1.00
90	0.91
100	0.82
110	0.72
120	0.65
130	0.57
140	0.50
150	0.42
160	0.40
170	0.29
180	0.25
200	0.20

Notes: PVC/CPVC material meets ASTM Standard D-1784
 Dimensions are subject to change without notice. Contact your HYDROSEAL representative for certification.

PVC ASTM D1785 SCHEDULE 120

PART	NOMINAL SIZE	OUTSIDE DIAMETER		PVC SCHEDULE 120			
				WALL THICKNESS		WORKING PRESSURE	WEIGHT
				IN	MM	PSI @73F	
0207.90G.0050	1/2"	0.84	21.34	0.170	4.32	1010	0.24
0207.90G.0075	3/4"	1.05	26.67	0.170	4.32	770	0.31
0207.90G.0100	1"	1.32	33.40	0.200	5.08	720	0.46
0207.90G.0125	1 1/4"	1.66	42.16	0.215	5.46	600	0.65
0207.90G.0150	1 1/2"	1.90	48.26	0.225	5.72	540	0.79
0207.90G.0200	2"	2.38	60.33	0.250	6.35	470	1.11
0207.90G.0250	2 1/2"	2.88	73.03	0.300	7.62	470	1.62
0207.90G.0300	3"	3.50	88.90	0.350	8.89	440	2.31
0207.90G.0400	4"	4.50	114.30	0.437	11.10	430	3.71
0207.90G.0600	6"	6.63	168.28	0.562	14.27	370	7.13
0207.90G.0800	8"	8.63	219.08	0.718	18.24	380	11.28

DERATING FACTOR

PVC	
TEMP(C)	FACTOR
73	1.00
80	0.88
90	0.75
100	0.62
110	0.51
120	0.40
130	0.31
140	0.22

CPVC ASTM F441 SCHEDULE 120

PART	NOMINAL SIZE	OUTSIDE DIAMETER		CPVC SCHEDULE 120			
				WALL THICKNESS		WORKING PRESSURE	WEIGHT
				IN	MM	PSI @180F	
0208.90G.0050	1/2"	0.84	21.34	0.170	4.32	253	0.25
0208.90G.0075	3/4"	1.05	26.67	0.170	4.32	193	0.34
0208.90G.0100	1"	1.32	33.40	0.200	5.08	180	0.50
0208.90G.0125	1 1/4"	1.66	42.16	0.215	5.46	150	0.70
0208.90G.0150	1 1/2"	1.90	48.26	0.225	5.72	135	0.85
0208.90G.0200	2"	2.38	60.33	0.250	6.35	118	1.20
0208.90G.0250	2 1/2"	2.88	73.03	0.300	7.62	118	1.74
0208.90G.0300	3"	3.50	88.90	0.350	8.89	110	2.49
0208.90G.0400	4"	4.50	114.30	0.437	11.10	108	4.01
0208.90G.0600	6"	6.63	168.28	0.562	14.27	93	7.70
0208.90G.0800	8"	8.63	219.08	0.718	18.24	95	12.18

DERATING FACTOR

CPVC	
TEMP(C)	FACTOR
80	1.00
90	0.91
100	0.82
110	0.72
120	0.65
130	0.57
140	0.50
150	0.42
160	0.40
170	0.29
180	0.25
200	0.20

Notes: PVC/CPVC material meets ASTM Standard D-1784
 Dimensions are subject to change without notice. Contact your HYDROSEAL representative for certification.

PVC ASTM D-1785 SCHEDULE 40

PART	NOMINAL SIZE	OUTSIDE DIAMETER		CLEAR PVC SCHEDULE 40			
				WALL THICKNESS		WORKING PRESSURE	WEIGHT
				IN	MM	IN	MM
0200.40K.0050	1/2"	0.84	21.34	0.109	2.77	600	0.14
0200.40K.0075	3/4"	1.05	26.67	0.113	2.87	480	0.18
0200.40K.0100	1"	1.32	33.40	0.133	3.38	450	0.27
0200.40K.0125	1 1/4"	1.66	42.16	0.140	3.56	370	0.36
0200.40K.0150	1 1/2"	1.90	48.26	0.145	3.68	330	0.43
0200.40K.0200	2"	2.38	60.33	0.154	3.91	280	0.58
0200.40K.0250	2 1/2"	2.88	73.03	0.203	5.16	300	0.91
0200.40K.0300	3"	3.50	88.90	0.216	5.49	260	1.19
0200.40K.0400	4"	4.50	114.30	0.237	6.02	220	1.69
0200.40K.0600	6"	6.63	168.28	0.280	7.11	180	2.99

PVC WTF™ Series CONTAINMENT PLUS

PART	NOMINAL SIZE	OUTSIDE DIAMETER		WTF™ Series CONTAINMENT PLUS			
				WALL THICKNESS		WORKING PRESSURE	WEIGHT
				IN	MM	IN	MM
0200.WTK.0050	1/2"	0.84	21.34	0.091	2.30	525	0.11
0200.WTK.0075	3/4"	1.05	26.67	0.091	2.30	400	0.14
0200.WTK.0100	1"	1.32	33.40	0.102	2.60	360	0.21
0200.WTK.0125	1 1/4"	1.66	42.16	0.118	3.00	320	0.30
0200.WTK.0150	1 1/2"	1.90	48.26	0.122	3.10	290	0.36
0200.WTK.0200	2"	2.38	60.33	0.138	3.50	250	0.52
0200.WTK.0250	2 1/2"	2.88	73.03	0.161	4.10	250	0.72
0200.WTK.0300	3"	3.50	88.90	0.193	4.90	240	1.06
0200.WTK.0400	4"	4.50	114.30	0.205	5.20	200	1.46
0200.WTK.0600	6"	6.63	168.28	0.268	6.80	170	2.86

DERATING FACTOR

PVC	
TEMP(C)	FACTOR
73	1.00
80	0.88
90	0.75
100	0.62
110	0.51
120	0.40
130	0.31
140	0.22

PVC ASTM D-2241 SDR Series

NOMINAL SIZE	OUTSIDE DIAMETER		PVC SDR 41				PVC SDR 26			
			PART	WALL THICKNESS		WEIGHT	PART	WALL THICKNESS		WEIGHT
				IN	MM			LB/FT	IN	
1"	1.32	33.40	0202.41G.0100	0.032	0.81	0.09	0202.26G.0100	0.060	1.52	0.17
1 1/4"	1.66	42.16	0202.41G.0125	0.040	1.03	0.15	0202.26G.0125	0.064	1.63	0.23
1 1/2"	1.90	48.26	0202.41G.0150	0.046	1.18	0.19	0202.26G.0150	0.073	1.85	0.30
2"	2.38	60.33	0202.41G.0200	0.058	1.47	0.29	0202.26G.0200	0.091	2.31	0.46
2 1/2"	2.88	73.03	0202.41G.0250	0.070	1.78	0.42	0202.26G.0250	0.110	2.79	0.66
3"	3.50	88.90	0202.41G.0300	0.085	2.17	0.61	0202.26G.0300	0.135	3.43	0.97
4"	4.50	114.30	0202.41G.0400	0.110	2.79	1.00	0202.26G.0400	0.173	4.39	1.57
5"	5.56	141.30	0202.41G.0500	0.136	3.45	1.53	0202.26G.0500	0.214	5.44	2.41
6"	6.63	168.28	0202.41G.0600	0.162	4.10	2.16	0202.26G.0600	0.255	6.48	3.41
8"	8.63	219.08	0202.41G.0800	0.210	5.34	3.66	0202.26G.0800	0.332	8.43	5.78
10"	10.75	273.05	0202.41G.1000	0.262	6.66	5.70	0202.26G.1000	0.413	10.49	8.97
12"	12.75	323.85	0202.41G.1200	0.311	7.90	8.01	0202.26G.1200	0.490	12.45	12.62
14"	14.00	355.60	0202.41G.1400	0.341	8.67	9.65	0202.26G.1400	0.538	13.67	15.21
16"	16.00	406.40	0202.41G.1600	0.390	9.91	12.61	0202.26G.1600	0.615	15.62	19.88
18"	18.00	457.20	0202.41G.1800	0.439	11.15	15.96	0202.26G.1800	0.692	17.58	25.16
20"	20.00	508.00	0202.41G.2000	0.488	12.39	19.70	0202.26G.2000	0.769	19.53	31.06
24"	24.00	609.60	0202.41G.2400	0.585	14.87	31.82	0202.26G.2400	0.823	20.90	44.74

NOMINAL SIZE	OUTSIDE DIAMETER		PVC SDR 21			
			PART	WALL THICKNESS		WEIGHT
				IN	MM	
1"	1.32	33.40	0202.21G.0100	0.063	1.60	0.18
1 1/4"	1.66	42.16	0202.21G.0125	0.079	2.01	0.28
1 1/2"	1.90	48.26	0202.21G.0150	0.090	2.29	0.36
2"	2.38	60.33	0202.21G.0200	0.113	2.87	0.55
2 1/2"	2.88	73.03	0202.21G.0250	0.137	3.48	0.80
3"	3.50	88.90	0202.21G.0300	0.167	4.24	1.17
4"	4.50	114.30	0202.21G.0400	0.214	5.44	1.93
5"	5.56	141.30	0202.21G.0500	0.265	6.73	2.95
6"	6.63	168.28	0202.21G.0600	0.316	8.03	4.19
8"	8.63	219.08	0202.21G.0800	0.410	10.41	7.07
10"	10.75	273.05	0202.21G.1000	0.512	13.00	11.12
12"	12.75	323.85	0202.21G.1200	0.607	15.42	15.64
14"	14.00	355.60	0202.21G.1400	0.667	16.93	18.84
16"	16.00	406.40	0202.21G.1600	0.762	19.35	24.63
18"	18.00	457.20	0202.21G.1800	0.857	21.77	31.16
20"	20.00	508.00	0202.21G.2000	0.952	24.19	38.46
24"	24.00	609.60	0202.21G.2400	1.143	29.03	62.13

DERATING FACTOR

PVC	
TEMP(C)	FACTOR
73	1.00
80	0.88
90	0.75
100	0.62
110	0.51
120	0.40
130	0.31
140	0.22

Notes: PVC/CPVC material meets ASTM Standard D-1784
 Dimensions are subject to change without notice. Contact your HYDROSEAL representative for certification.

PVC BS 3505/3506

NOMINAL SIZE	O.D.	CLASS E				CLASS D				CLASS C			
		PART	WALL THICKNESS	WORKING PRESSURE	WEIGHT	PART	WALL THICKNESS	WORKING PRESSURE	WEIGHT	PART	WALL THICKNESS	WORKING PRESSURE	WEIGHT
	MM		MM	BARS	KG/MT		MM	BARS	KG/MT		MM	BARS	KG/MT
1/2"	21.34	0204.CEG.0050	1.70	15	0.14	N/A	-	-	-	N/A	-	-	-
3/4"	26.67	0204.CEG.0075	1.90	15	0.20	N/A	-	-	-	N/A	-	-	-
1"	33.40	0204.CEG.0100	2.20	15	0.30	N/A	-	-	-	N/A	-	-	-
1 1/4"	42.16	0204.CEG.0125	2.70	15	0.48	0204.CDG.0125	2.20	12	0.39	N/A	-	-	-
1 1/2"	48.26	0204.CEG.0150	3.10	15	0.64	0204.CDG.0150	2.50	12	0.51	N/A	-	-	-
2"	60.33	0204.CEG.0200	3.90	15	1.02	0204.CDG.0200	3.10	12	0.81	0204.CCG.0200	2.50	9	0.65
2 1/2"	75.00	0204.CEG.0250	4.80	15	1.51	0204.CDG.0250	3.90	12	1.23	0204.CCG.0250	3.00	9	0.95
3"	88.90	0204.CEG.0300	5.70	15	2.20	0204.CDG.0300	4.60	12	1.78	0204.CCG.0300	3.50	9	1.35
4"	114.30	0204.CEG.0400	7.30	15	3.63	0204.CDG.0400	6.00	12	2.99	0204.CCG.0400	4.50	9	2.24
6"	168.28	0204.CEG.0600	10.80	15	8.03	0204.CDG.0600	8.80	12	6.54	0204.CCG.0600	6.60	9	4.91
8"	219.08	0204.CEG.0800	12.60	15	11.59	0204.CDG.0800	10.30	12	9.48	0204.CCG.0800	7.80	9	7.18

PVC DIN 8061/8062

NOMINAL SIZE	O.D.	SERIES 6 PN20				SERIES 5 PN16				SERIES 4 PN10			
		PART	WALL THICKNESS	WORKING PRESSURE	WEIGHT	PART	WALL THICKNESS	WORKING PRESSURE	WEIGHT	PART	WALL THICKNESS	WORKING PRESSURE	WEIGHT
	MM		MM	BARS	KG/MT		MM	BARS	KG/MT		MM	BARS	KG/MT
DN15	20.00	0209.20G.0050	1.90	20	0.14	0209.16G.0050	1.50	16	0.11	N/A	-	10	-
DN20	25.00	0209.20G.0075	2.30	20	0.23	0209.16G.0075	1.90	16	0.19	0209.10G.0075	1.50	10	0.15
DN25	32.00	0209.20G.0100	3.00	20	0.39	0209.16G.0100	2.40	16	0.31	0209.10G.0100	1.60	10	0.21
DN32	40.00	0209.20G.0125	3.70	20	0.62	0209.16G.0125	3.00	16	0.50	0209.10G.0125	1.90	10	0.32
DN40	50.00	0209.20G.0150	4.60	20	0.98	0209.16G.0150	3.70	16	0.79	0209.10G.0150	2.40	10	0.51
DN50	63.00	0209.20G.0200	5.80	20	1.58	0209.16G.0200	4.70	16	1.28	0209.10G.0200	3.00	10	0.82
DN65	75.00	0209.20G.0250	6.90	20	2.18	0209.16G.0250	5.60	16	1.77	0209.10G.0250	3.60	10	1.14
DN80	90.00	0209.20G.0300	8.20	20	3.20	0209.16G.0300	6.70	16	2.62	0209.10G.0300	4.30	10	1.68
DN100	110.00	0209.20G.0400	10.00	20	4.79	0209.16G.0400	8.20	16	3.93	0209.10G.0400	5.30	10	2.54
DN150	160.00	0209.20G.0600	14.50	20	10.25	0209.16G.0600	11.90	16	8.41	0209.10G.0600	7.70	10	5.44
DN200	200.00	0209.20G.0800	18.20	20	15.29	0209.16G.0800	14.90	16	12.51	0209.10G.0800	9.60	10	8.06

PVC JIS K-6741

NOMINAL SIZE	O.D.	VP (AW)				VU (AE)			
		PART	WALL THICKNESS	WORKING PRESSURE	WEIGHT	PART	WALL THICKNESS	WORKING PRESSURE	WEIGHT
	MM		MM	BARS	KG/MT		MM	BARS	KG/MT
1/2"	22.00	0211.VPG.0050	2.70	25	0.26	0211.VUG.0050	1.80	15	0.17
3/4"	26.00	0211.VPG.0075	2.70	25	0.31	0211.VUG.0075	1.80	15	0.21
1"	32.00	0211.VPG.0100	3.10	25	0.46	0211.VUG.0100	1.80	15	0.26
1 1/4"	38.00	0211.VPG.0125	3.10	25	0.69	0211.VUG.0125	1.80	15	0.4
1 1/2"	48.00	0211.VPG.0150	3.60	25	0.8	0211.VUG.0150	1.80	15	0.4
2"	60.00	0211.VPG.0200	4.10	25	1.13	0211.VUG.0200	1.80	15	0.49
2 1/2"	76.00	0211.VPG.0250	4.10	25	1.46	0211.VUG.0250	2.20	15	0.78
3"	89.00	0211.VPG.0300	5.50	25	2.2	0211.VUG.0300	2.70	15	1.08
4"	114.00	0211.VPG.0400	6.60	25	3.42	0211.VUG.0400	3.10	15	1.61
6"	165.00	0211.VPG.0600	8.90	25	6.71	0211.VUG.0600	5.10	15	3.84
8"	216.00	0211.VPG.0800	10.30	25	10.13	0211.VUG.0800	6.50	15	6.39

DERATING FACTOR

PVC	
TEMP(C)	FACTOR
23	1.00
27	0.88
32	0.75
38	0.62
43	0.51
49	0.40
54	0.31
60	0.22

Notes: PVC/CPVC material meets ASTM Standard D-1784
Dimensions are subject to change without notice. Contact your HYDROSEAL representative for certification.

CPVC DIN 8079/8080

NOMINAL SIZE	O.D.	SERIES 7 PN25				SERIES 6 PN20				SERIES 5 PN16			
		PART	WALL THICKNESS	WORKING PRESSURE	WEIGHT	PART	WALL THICKNESS	WORKING PRESSURE	WEIGHT	PART	WALL THICKNESS	WORKING PRESSURE	WEIGHT
	MM		MM	BARS	KG/MT		MM	BARS	KG/MT		MM	BARS	KG/MT
DN15	20.00	0210.25I.0050	2.30	25	0.17	0210.20I.0050	1.90	20	0.14	0210.16I.0050	1.50	16	0.109
DN20	25.00	0210.25I.0075	2.80	25	0.27	0210.20I.0075	2.30	20	0.22	0210.16I.0075	1.90	16	0.18
DN25	32.00	0210.25I.0100	3.60	25	0.45	0210.20I.0100	3.00	20	0.38	0210.16I.0100	2.40	16	0.30
DN32	40.00	0210.25I.0125	4.50	25	0.72	0210.20I.0125	3.70	20	0.59	0210.16I.0125	3.00	16	0.48
DN40	50.00	0210.25I.0150	5.60	25	1.13	0210.20I.0150	4.60	20	0.93	0210.16I.0150	3.70	16	0.75
DN50	63.00	0210.25I.0200	7.00	25	1.83	0210.20I.0200	5.80	20	1.51	0210.16I.0200	4.70	16	1.23
DN65	75.00	0210.25I.0250	8.40	25	2.52	0210.20I.0250	6.90	20	2.07	0210.16I.0250	5.60	16	1.68
DN80	90.00	0210.25I.0300	10.00	25	3.71	0210.20I.0300	8.20	20	3.04	0210.16I.0300	6.70	16	2.49
DN100	110.00	0210.25I.0400	12.30	25	5.55	0210.20I.0400	10.00	20	4.51	0210.16I.0400	8.20	16	3.70

CPVC ASTM D2846 CTS Series

PART	NOMINAL SIZE	OUTSIDE DIAMETER		CPVC CTS SERIES (SDR11)			
				WALL THICKNESS		WORKING PRESSURE	WEIGHT
				IN	MM	PSI @180F	LB/ FT
0215.CTI.0050	1/2"	0.63	15.88	0.068	1.73	100	0.08
0215.CTI.0075	3/4"	0.88	22.23	0.080	2.03	100	0.13
0215.CTI.0100	1"	1.13	28.58	0.102	2.59	100	0.22
0215.CTI.0125	1 1/4"	1.38	34.93	0.125	3.18	100	0.34
0215.CTI.0150	1 1/2"	1.63	41.28	0.148	3.76	100	0.48
0215.CTI.0200	2"	2.13	53.98	0.193	4.90	100	0.83

DERATING FACTOR

CPVC										
TEMPERATURE (F)	73	90	100	110	120	150	160	170	180	200
FACTOR	1.00	0.91	0.82	0.72	0.65	0.42	0.40	0.29	0.25	0.20

PVC BRITISH STANDARD

NOMINAL SIZE	O.D.	BS 5255			BS 4514			BS 4660			BS 5481		
		PART	WALL THICKNESS	WEIGHT	PART	WALL THICKNESS	WEIGHT	PART	WALL THICKNESS	WEIGHT	PART	WALL THICKNESS	WEIGHT
	MM		MM	KG/MT					MM	KG/MT		MM	KG/MT
1 1/4"	36.15	0201.5255.0125	1.80	0.14	N/A	-	-	N/A	-	-	N/A	-	-
1 1/2"	42.75	0201.5255.0150	1.90	0.20	N/A	-	-	N/A	-	-	N/A	-	-
2"	55.75	0201.5255.0200	2.00	0.30	N/A	-	-	N/A	-	-	N/A	-	-
3"	82.40	N/A	-	-	0201.4514.0300	3.20	0.39	0203.4660.0300	3.20	-	N/A	-	-
4"	110.00	N/A	-	-	0201.4514.0400	3.20	0.51	0203.4660.0400	3.20	-	N/A	-	-
6"	160.00	N/A	-	-	0201.4514.0600	3.20	0.81	0203.4660.0600	4.10	0.65	N/A	-	-
8"	200.00	N/A	-	-	N/A	-	-	N/A	-	-	0203.5481.0800	4.90	1.51
10"	250.00	N/A	-	-	N/A	-	-	N/A	-	-	0203.5481.1000	6.10	2.20
12"	315.00	N/A	-	-	N/A	-	-	N/A	-	-	0203.5481.1200	7.70	3.63
14"	355.00	N/A	-	-	N/A	-	-	N/A	-	-	0203.5481.1400	8.70	-
16"	400.00	N/A	-	-	N/A	-	-	N/A	-	-	0203.5481.1600	9.80	-
18"	450.00	N/A	-	-	N/A	-	-	N/A	-	-	0203.5481.1800	11.00	8.03
20"	500.00	N/A	-	-	N/A	-	-	N/A	-	-	0203.5481.2000	12.20	11.59

PVC DIN SERIES

NOMINAL SIZE	O.D.	DIN19531			DIN19534		
		PART	WALL THICKNESS	WEIGHT	PART	WALL THICKNESS	WEIGHT
	MM		MM	KG/MT		MM	KG/MT
1 1/2"	40.00	N/A	1.80	0.20	N/A	-	-
2"	50.00	N/A	1.80	0.30	N/A	-	-
3"	75.00	N/A	1.80	-	N/A	-	-
4"	110.00	N/A	2.20	-	N/A	3.00	0.51
6"	160.00	N/A	3.20	-	N/A	3.60	0.81
8"	200.00	N/A	-	-	N/A	4.50	-
10"	250.00	N/A	-	-	N/A	6.10	-
12"	315.00	N/A	-	-	N/A	7.70	-
16"	400.00	N/A	-	-	N/A	9.80	-
20"	500.00	N/A	-	-	N/A	12.20	-

TABLE 1

ASTM STANDARD SPECIFICATIONS	
ASTM D1784	Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
ASTM D1785	Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Tube, Schedules 40, 80 and 120
ASTM D6263	Standard Specification for Extruded Bars Made From Rigid Poly (Vinyl Chloride) (PVC) and Chlorinated Poly (Vinyl Chloride) (CPVC)
ASTM D2464	Standard Specification for Threaded Poly (Vinyl Chloride) (PVC) Plastic Tube Fittings, Schedule 80
ASTM D2467	Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Tube Fittings, Schedule 80
ASTM D2241	Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure Rated Tube (SDR Series)
ASTM F441	Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Tube, Schedules 40 and 80
ASTM F442	Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Tube (SDR-PR)
ASTM D2672	Standard Specification for Joints for IPS PVC Tube Using Solvent Cement
ASTM D2846	Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems
ASTM D2466	Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Tube Fittings, Schedule 40
ASTM D2672	Standard Specification for Joints for Plastic Pressure Tubes Using Flexible Elastomeric Seals
ASTM D2665	Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Tube and Fittings
ASTM F437	Standard Specification for Threaded Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Tube Fittings, Schedule 80
ASTM F438	Standard Specification for Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Tube Fittings, Schedule 40
ASTM F439	Standard Specification for Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Tube Fittings, Schedule 80
ASTM F477	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Tube
ASTM F480	Standard Specification for Thermoplastic Well Casing Tube and Couplings Made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80
ASTM F493	Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Tube and Fittings
ASTM F656	Standard Specification for Primers for Use in Solvent Cement Joints of Poly (Vinyl Chloride) (PVC) Plastic Tube and Fittings
ASTM F913	Standard Specification for Thermoplastic Elastomeric Seals (Gaskets) for Joining Plastic Tube
ASTM D1866	Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Schedule 40 Drainage and DWV Fabricated Fittings

ASTM STANDARD TEST METHODS	
ASTM D1598	Standard Test Method for Time-to-Failure of Plastic Tube Under Constant Internal Pressure
ASTM D1599	Standard Test Method for Resistance to Short-Time Hydraulic Pressure of Plastic Tube & Fittings
ASTM D2837	Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Tube Materials
ASTM D2412	Standard Test Method for Determination of External Loading Characteristics of Plastic Tube by Parallel-Plate Loading
ASTM D2444	Standard Test Method for Determination of the Impact Resistance of Thermoplastic Tube and Fittings by Means of a Tup (Falling Weight)
ASTM D2564	Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Tubing Systems
ASTM D2152	Standard Test Method for Adequacy of Fusion by Acetone Immersion
ASTM D2122	Standard Test Method for Determining Dimensions of Thermoplastic Tube & Fittings
ASTM F610	Standard Test Method for Evaluating the Quality of Molded Poly (Vinyl Chloride) (PVC) Plastic Tube Fittings by the Heat Reversion Technique

TABLE 2 (CONTINUED)

ASTM STANDARD PRACTICES	
ASTM D2855	Standard Practice for Marking Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Tube and Fittings
ASTM D2774	Standard Practice for Underground Installation of Thermoplastic Pressure Tubing
ASTM D2321	Standard Practice for Underground Installation of Thermoplastic Tube for Sewers and Other Gravity-Flow Applications
ASTM F402	Standard Practice for Safe Handling of Solvent Cements, Primers, and Cleaners Used for Joining Thermoplastics Tube and Fittings
ASTM F690	Standard Practice for Underground Installation of Thermoplastic Pressure Tubing Irrigation System
ASTM F1057	Standard Practice for Evaluating the Quality of Extruded Poly (Vinyl Chloride) (PVC) Tube by the Heat Reversion Technique
ASTM F645	Standard Guide for Selection, Design, and Installation of Thermoplastic Water Pressure Systems

TOXICOLOGICAL	
NSF INTERNATIONAL NSF STANDARD 061	Drinking Water System Components - Health Effects
NSF INTERNATIONAL NSF STANDARD 14	Plastics Tubing System Components and Related Materials
UNITED STATES FDA CODE OF FEDERAL REGULATIONS	Title 21

FIRE PERFORMANCE	
ULC-S102.2-M88	Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Covering, and Miscellaneous Materials and Assemblies
UL 723	Test for Surface Burning Characteristics of Building Materials
UL1821	Thermoplastic Sprinkler Tube and Fittings for Fire Protection Service
UL 1887	Standard for Safety for Fire Test of Plastic Sprinkler Tube for Flame and Smoke Characteristics
UL 94	Test for Flammability of Plastic Materials for Parts in Devices and Appliances
FM1635	Plastic Tube & Fittings for Automatic Sprinkler Systems
FM4910	Clean Room Materials Flammability Test Protocol
ASTM E84	Standard Test Method for Surface Burning Characteristics of Building Materials
ASTM D635	Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position
ASTM E162	Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source
ASTM D2863	Standard Test Method for Measuring the Minimum Oxygen Concentration to Support Candle-Like Combustion of Plastics (Oxygen Index)

OTHER	
CSA STANDARD B137.3-99	Rigid Poly (Vinyl Chloride) (PVC) Tube for Pressure Applications

PVC AND CPVC TUBES

Schedule 40 Flow Velocity & Friction Loss

TABLE 1

SCH40		SCHEDULE 40 FLOW VELOCITY & FRICTION LOSS												SCH40						
Flow Rate (Gallons per Minute)	GPM	1/8"		1/4"		3/8"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		Flow Rate (Gallons per Minute)
		Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	
0.25	1.64	6.54	2.83	0.86	1.36	0.59	0.46	0.29	0.12											
0.5	3.27	23.6	10.23	1.72	4.90	2.12	0.91	1.04	0.45											
0.75	4.91	50	21.68	2.59	10.38	4.50	1.57	2.20	0.96											
1	6.55	85.18	36.93	3.45	17.68	7.66	1.82	3.75	1.63											
2	13.09	307.52	133.31	6.90	63.82	27.67	3.65	13.55	5.88											
5				17.25	348.29	150.98	9.11	73.96	32.06											
7							12.76	137.93	59.79											
10																				
Flow Rate (Gallons per Minute)	GPM	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		Flow Rate (Gallons per Minute)		
		Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)			
1	1.13	1.16	0.50	0.63	0.28	0.12	0.39	0.09	0.04	0.22	0.02	0.01	0.16	0.01	0.00	0.10	0.00	0.00	0.00	1
2	2.25	4.19	1.82	1.26	1.03	0.44	0.77	0.31	0.13	0.44	0.08	0.03	0.32	0.04	0.02	0.19	0.01	0.00	0.00	2
5	5.63	22.88	9.92	3.16	5.60	2.43	1.93	1.69	0.73	1.10	0.43	0.19	0.81	0.20	0.09	0.49	0.06	0.03	0.03	5
7	7.88	42.66	18.49	4.42	10.44	4.53	2.70	3.14	1.36	1.55	0.81	0.35	1.13	0.38	0.16	0.68	0.11	0.05	0.02	7
10	11.26	82.59	35.80	6.31	20.21	8.76	3.86	6.08	2.64	2.21	1.57	0.68	1.62	0.73	0.32	0.97	0.21	0.09	0.04	10
15				9.47	42.82	18.56	5.78	12.89	5.59	3.31	3.32	1.44	2.42	1.55	0.67	1.46	0.45	0.20	0.08	15
20	0.51	0.03	0.01	12.63	72.95	31.36	7.71	21.96	9.52	4.42	5.65	2.45	3.23	2.64	1.15	1.95	0.77	0.34	0.14	20
25	0.64	0.05	0.02		5"		9.64	33.2	14.39	5.52	8.55	3.71	4.04	4.00	1.73	2.44	1.17	0.51	0.21	25
30	0.77	0.06	0.03	0.49	0.02	0.01	11.57	46.54	20.17	6.62	11.98	5.19	4.85	5.60	2.43	2.92	1.64	0.71	0.30	30
35	0.89	0.08	0.04	0.57	0.03	0.01				7.73	15.94	6.91	5.65	7.45	3.23	3.41	2.18	0.94	0.40	35
40	1.02	0.11	0.05	0.65	0.04	0.02				8.83	20.41	8.85	6.46	9.54	4.14	3.90	2.79	1.21	0.51	40
45	1.15	0.13	0.06	0.73	0.04	0.02				9.94	25.39	11.00	7.27	11.87	5.15	4.39	3.47	1.51	0.63	45
50	1.28	0.16	0.07	0.81	0.05	0.02				11.04	30.86	13.38	8.08	14.43	6.25	4.87	4.22	1.83	0.77	50
60	1.53	0.23	0.1	0.97	0.08	0.03	0.56	0.02	0.01	9.69	20.22	8.77	5.85	5.92	2.56	4.1	2.49	1.08	1.08	60
70	1.79	0.3	0.13	1.14	0.1	0.04	0.67	0.03	0.01				6.82	7.87	3.41	4.78	3.32	1.44	1.44	70
75	1.92	0.34	0.15	1.22	0.11	0.05	0.84	0.05	0.02				7.31	8.94	3.88	5.12	3.77	1.63	1.63	75
80	2.04	0.39	0.17	1.30	0.13	0.06	0.90	0.05	0.02				7.80	10.08	4.37	5.46	4.25	1.84	1.84	80

PVC AND CPVC TUBES

Schedule 40 Flow Velocity & Friction Loss

TABLE 2 (CONTINUED)

SCH40													SCH40												
SCHEDULE 40 FLOW VELOCITY & FRICTION LOSS													SCHEDULE 40 FLOW VELOCITY & FRICTION LOSS												
Flow Rate (Gallons per Minute)	Flow Velocity (ft./sec.)	Friction Loss (Ft. Water/100ft)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (Ft. Water/100ft)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (Ft. Water/100ft)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (Ft. Water/100ft)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (Ft. Water/100ft)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (Ft. Water/100ft)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (Ft. Water/100ft)	Friction Loss (psi/100ft)	Flow Rate (Gallons per Minute)			
GPM													GMP												
90	2.30	0.48	0.21	1.46	0.16	0.07	1.01	0.07	0.03	8"			8.77	12.53	5.43	6.15	5.28	2.29	3.97	1.82	0.79	90			
100	2.55	0.59	0.25	1.62	0.19	0.08	1.12	0.08	0.03	0.65	0.02	0.01	9.74	15.23	6.60	6.83	6.42	2.78	4.41	2.22	0.96	100			
125	3.19	0.89	0.38	2.03	0.29	0.13	1.40	0.12	0.05	0.81	0.03	0.01	12.18	23.03	9.98	8.54	9.70	4.21	5.52	3.35	1.45	125			
150	3.83	1.24	0.05	2.43	0.41	0.18	1.68	0.17	0.07	0.97	0.04	0.02	10"			10.24	13.60	5.90	6.62	4.70	2.04	150			
175	4.47	1.65	0.72	2.84	0.55	0.24	1.96	0.22	0.10	1.13	0.06	0.03	12"			7.72	6.25	2.71	7.72	6.25	2.71	175			
200	5.11	2.12	0.92	3.25	0.70	0.30	2.25	0.29	0.12	1.29	0.08	0.03	0.82	0.02	0.01	8.82	8.00	3.47	8.82	8.00	3.47	200			
250	6.39	3.20	1.39	4.06	1.06	0.46	2.81	0.43	0.19	1.62	0.11	0.05	1.03	0.04	0.02	11.03	12.10	5.24	11.03	12.10	5.24	250			
300	7.66	4.49	1.95	4.87	1.49	0.65	3.37	0.61	0.26	1.94	0.16	0.07	1.23	0.05	0.02	14"			10.24	13.60	5.90	300			
350	8.94	5.97	2.59	5.68	1.98	0.86	3.93	0.81	0.35	2.27	0.21	0.09	1.44	0.07	0.03	1.01	0.03	0.01	0.96	0.02	0.01	350			
400	10.22	7.64	3.31	6.49	2.54	1.10	4.49	1.03	0.45	2.59	0.27	0.12	1.64	0.09	0.04	1.16	0.04	0.02	0.96	0.02	0.01	400			
450				7.30	3.15	1.37	5.05	1.29	0.56	2.91	0.34	0.15	1.85	0.11	0.05	1.30	0.05	0.02	1.08	0.03	0.01	450			
500				8.11	3.83	1.66	5.61	1.56	0.68	3.24	0.41	0.18	2.05	0.14	0.06	1.44	0.06	0.02	1.19	0.04	0.02	500			
750	1.08	0.02	0.01							4.85	0.87	0.38	3.08	0.29	0.12	2.17	0.12	0.05	1.79	0.08	0.03	750			
1000	1.45	0.04	0.02	1.16	0.02	0.01				6.47	1.48	0.64	4.10	0.49	0.21	2.89	0.21	0.09	2.39	0.13	0.06	1000			
1250	1.81	0.06	0.03	1.45	0.03	0.01							5.13	0.74	0.32	3.61	0.31	0.14	2.99	0.20	0.09	1250			
1500	2.17	0.08	0.04	1.74	0.05	0.02							6.15	1.03	0.45	4.33	0.44	0.19	3.58	0.28	0.12	1500			
2000	2.89	0.14	0.06	2.32	0.08	0.04	1.61	0.03	0.01							5.78	0.75	0.33	4.78	0.47	0.20	2000			
2500	3.61	0.21	0.09	2.91	0.12	0.05	2.01	0.05	0.02							7.22	1.13	0.49	5.97	0.71	0.31	2500			
3000	4.34	0.29	0.13	3.49	0.17	0.08	2.41	0.07	0.03										7.17	1.00	0.43	3000			
3500	5.06	0.39	0.17	4.07	0.23	0.10	2.81	0.09	0.04													3500			
4000	5.78	0.50	0.22	4.65	0.30	0.13	3.21	0.12	0.05													4000			
4500	6.50	0.62	0.27	5.23	0.37	0.16	3.62	0.15	0.06													4500			
5000				5.81	0.45	0.19	4.02	0.18	0.08													5000			
5500				6.39	0.53	0.23	4.42	0.22	0.09													5500			
6000				6.97	0.63	0.27	4.82	0.25	0.11													6000			
7000							5.62	0.34	0.15													7000			
7500							6.03	0.39	0.17													7500			
8000							6.43	0.43	0.19													8000			
8500							6.83	0.49	0.21													8500			

NOTE: HYDROSEAL recommends that Flow Velocities be maintained at or below 5 feet per second in large diameter piping systems (i.e. 6" diameter and larger) to minimize the potential for hydraulic shock. Refer to section HYDROSEAL engineering section entitled "Hydraulic Shock" for additional information. Friction loss data based on utilizing mean wall dimensions to determine average ID; actual ID may vary.

PVC AND CPVC TUBES

Schedule 80 Flow Velocity & Friction Loss

TABLE 1

SCH80		SCHEDULE 80 FLOW VELOCITY & FRICTION LOSS																		SCH80	
Flow Rate (Gallons per Minute)	GPM	1/8"		1/4"		3/8"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		Flow Rate (Gallons per Minute)	GMP
		Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)		
0	2.67	21.47	9.31	1.29	3.57	1.55	0.63	0.63	0.27												
1	5.35	77.52	33.60	2.59	1,288.00	5.58	1.25	2.27	0.98												
1	8.02	164.25	71.20	3.88	27.29	11.83	1.88	4.80	2.08												
1	10.69	279.84	121.31	5.17	46.49	20.15	2.51	8.18	3.55												
2	21.39	1,010.21	437.93	10.35	167.84	72.76	5.01	29.54	12.81												
5				25.87	597.07	397.07	12.53	161.23	69.89												
7							17.54	300.66	130.34												
10																					
Flow Rate (Gallons per Minute)	GPM	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		Flow Rate (Gallons per Minute)	GMP		
		Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)				
1	1.48	2.24	0.97	0.78	0.48	0.21	0.47	0.14	0.06	0.26	0.03	0.01	0.19	0.01	0.11	0.00	0.00	0.05	0.00	0.00	1
2	2.96	8.08	3.50	1.56	1.73	0.75	0.93	0.49	0.21	0.52	0.12	0.05	0.38	0.05	0.22	0.02	0.01	0.16	0.01	0.00	2
5	7.39	44.12	19.12	3.91	9.45	4.10	2.33	2.67	1.16	1.30	0.64	0.28	0.96	0.29	0.56	0.08	0.04	0.39	0.03	0.01	5
7	10.35	82.27	35.66	5.48	17.62	7.64	3.26	4.98	2.16	1.81	1.20	0.52	1.34	0.54	0.78	0.15	0.07	0.55	0.06	0.03	7
10	14.78	159.26	69.04	7.82	34.11	14.79	4.66	9.65	4.18	2.59	2.32	1.00	1.92	1.05	1.12	0.30	0.13	0.78	0.12	0.05	10
15				11.74	72.27	31.33	6.99	20.44	8.86	3.89	4.91	2.13	2.87	2.23	1.67	0.63	0.27	1.17	0.26	0.11	15
20	0.57	0.04	0.02	15.65	123.13	53.38	9.33	34.82	15.09	5.18	8.36	3.62	3.83	3.80	2.23	1.07	0.47	1.56	0.45	0.19	20
25	0.71	0.06	0.03				11.66	52.64	22.82	6.48	12.64	5.48	4.79	5.74	2.79	1.63	0.70	1.95	0.68	0.29	25
30	0.85	0.08	0.04	0.54	0.03	0.01	13.99	73.78	31.98	7.77	17.71	7.68	5.75	8.04	3.35	2.28	0.99	2.34	0.95	0.41	30
35	1.00	0.11	0.05	0.63	0.04	0.02	16.32	98.16	42.55	9.07	23.56	10.21	6.71	10.70	4.64	3.91	3.03	2.73	1.26	0.55	35
40	1.14	0.14	0.06	0.72	0.05	0.02	18.65	125.70	54.49	10.37	30.17	13.08	7.66	13.71	5.94	4.46	3.88	3.11	1.62	0.70	40
45	1.28	0.17	0.08	0.81	0.06	0.02				11.66	37.53	16.27	8.62	17.05	7.39	5.02	4.83	3.50	2.01	0.87	45
50	1.42	0.21	0.09	0.90	0.07	0.03	0.63	0.03	0.01	12.96	45.62	19.77	9.58	20.72	8.98	5.58	5.87	3.89	2.45	1.06	50
60	1.71	0.30	0.13	1.08	0.10	0.04	0.75	0.04	0.02	15.55	63.94	27.72	11.50	29.04	12.59	6.69	8.22	4.67	3.43	1.49	60
70	1.99	0.39	0.17	1.26	0.13	0.06	0.88	0.05	0.02	18.14	85.06	36.87	13.41	38.64	16.75	7.81	10.94	5.45	4.56	1.98	70
75	2.14	0.45	0.19	1.35	0.15	0.06	0.94	0.06	0.03	19.43	96.66	41.90	14.37	43.90	19.03	8.37	12.43	5.84	5.18	2.25	75
80	2.28	0.51	0.22	1.44	0.16	0.07	1.00	0.07	0.03	20.73	108.93	47.22	15.33	49.48	21.45	8.93	14.01	6.23	5.84	2.53	80

PVC AND CPVC TUBES

Schedule 80 Flow Velocity & Friction Loss

TABLE 2 (CONTINUED)

SCH80 Flow Rate (Gallons per Minute)	SCHEDULE 80 FLOW VELOCITY & FRICTION LOSS														SCH80 Flow Rate (Gallons per Minute)											
	4"	5"		6"		8"		1 1/2"		2"		2 1/2"		3"												
GPM	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (Ft. Water/100ft)	Flow Velocity (ft./sec.)	Friction Loss (Ft. Water/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (Ft. Water/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (Ft. Water/100ft)										
90	2.56	0.63	0.27	1.62	0.20	0.09	1.13	0.09	0.04				17.24	61.54	26.68	10.04	17.42	7.55	7.01	7.26	3.15	4.48	2.45	1.06	90	
100	2.85	0.76	0.33	1.80	0.25	0.11	1.25	0.10	0.04				19.16	74.80	32.42	11.16	21.18	9.18	7.79	8.83	3.83	4.98	2.97	1.29	100	
125	3.56	1.16	0.50	2.24	0.38	0.16	1.57	0.16	0.07	0.89	0.04	0.02	23.95	113.07	49.02	13.95	32.02	13.88	9.73	13.34	5.78	6.22	4.49	1.95	125	
150	4.27	1.62	0.70	2.69	0.53	0.23	1.88	0.22	0.10	1.07	0.06	0.02	28.74	158.49	68.71	16.74	44.88	19.45	11.68	18.70	8.11	7.47	6.30	2.73	150	
175	4.98	2.16	0.93	3.14	0.70	0.30	2.19	0.29	0.13	1.25	0.07	0.03				19.53	59.70	25.88	13.63	24.88	10.79	8.71	8.38	3.63	175	
200	5.70	2.76	1.20	3.59	0.90	0.39	2.51	0.37	0.16	1.43	0.10	0.04	0.91	0.03	0.01	22.32	76.45	33.14	15.57	31.86	13.81	9.96	10.73	4.65	200	
250	7.12	4.17	1.81	4.49	1.36	0.59	3.13	0.57	0.25	1.78	0.14	0.06	1.13	0.05	0.02	27.90	115.58	50.10	19.47	48.17	20.88	12.44	16.22	7.03	250	
300	8.55	5.85	2.54	5.39	1.90	0.83	3.76	0.79	0.34	2.14	0.20	0.09	1.36	0.07	0.03				23.36	67.52	29.27	14.93	22.74	9.86	300	
350	9.97	7.78	3.37	6.29	2.53	1.10	4.38	1.05	0.46	2.50	0.27	0.12	1.59	0.09	0.04	1.12	0.04	0.02					16"			350
400	11.39	9.96	4.32	7.18	3.24	1.41	5.01	1.35	0.59	2.85	0.34	0.15	1.81	0.11	0.05	1.28	0.05	0.02	1.06	0.03	0.01	0.81	0.02	0.01	400	
450	12.8	12.39	5.37	8.08	4.04	1.75	5.64	1.68	0.73	3.21	0.43	0.19	2.04	0.14	0.06	1.44	0.06	0.03	1.19	0.04	0.02	0.91	0.02	0.01	450	
500				8.98	4.90	2.13	6.26	2.04	0.89	3.57	0.52	0.23	2.27	0.17	0.07	1.60	0.07	0.03	1.33	0.05	0.02	1.01	0.02	0.01	500	
750	1.19	0.03	0.01			20							3.40	0.36	0.16	2.40	0.16	0.07	1.99	0.10	0.04	1.52	0.05	0.02	750	
1000	1.59	0.05	0.02	1.29	0.03	0.01							4.53	0.62	0.27	3.20	0.27	0.12	2.65	0.17	0.07	2.02	0.09	0.04	1000	
1250	1.99	0.07	0.03	1.61	0.04	0.02							5.66	0.94	0.41	4.00	0.40	0.17	3.31	0.25	0.11	2.53	0.13	0.06	1250	
1500	2.39	0.10	0.04	1.93	0.06	0.03	1.34	0.03	0.01				6.80	1.32	0.57	4.80	0.57	0.24	3.98	0.36	0.15	3.03	0.18	0.08	1500	
2000	3.18	0.18	0.08	2.57	0.10	0.05	1.78	0.04	0.02							6.40	0.96	0.42	5.30	0.61	0.26	4.04	0.31	0.14	2000	
2500	3.98	0.27	0.12	3.22	0.16	0.07	2.23	0.06	0.03										6.63	0.92	0.40	5.05	0.48	0.21	2500	
3000	4.78	0.37	0.16	3.86	0.22	0.10	2.67	0.09	0.04										7.95	1.29	0.56	6.06	0.67	0.29	3000	
3500	5.57	0.50	0.22	4.50	0.30	0.13	3.12	0.12	0.05													7.07	0.89	0.38	3500	
4000	6.37	0.64	0.28	5.15	0.38	0.16	3.56	0.15	0.07																4000	
4500	7.16	0.79	0.34	5.79	0.47	0.20	4.01	0.19	0.08																4500	
5000				6.43	0.57	0.25	4.45	0.23	0.10																5000	
5500				7.08	0.68	0.30	4.90	0.28	0.12																5500	
6000				7.72	0.80	0.35	5.34	0.33	0.14																6000	
7000							6.23	0.44	0.19																7000	
7500							6.68	0.49	0.21																7500	
8000							7.12	0.56	0.24																8000	
8500							7.57	0.62	0.27																8500	

NOTE: HYDROSEAL recommends that Flow Velocities be maintained at or below 5 feet per second in large diameter piping systems (i.e. 6" diameter and larger) to minimize the potential for hydraulic shock. Refer to section HYDROSEAL engineering section entitled "Hydraulic Shock" for additional information. Friction Loss data based on utilizing mean wall dimensions to determine average ID; actual ID may vary.

PVC AND CPVC TUBES

Schedule 120 Flow Velocity & Friction Loss

TABLE 1

SCH120		SCHEDULE 120 FLOW VELOCITY & FRICTION LOSS																SCH120				
Flow Rate (Gallons per Minute)	GPM	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	
		Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft/sec.)	Friction Loss (psi/100ft)							
1	1.77	3.50	1.52	0.86	0.60	0.26	0.51	0.17	0.07	0.28	0.04	0.02	0.20	0.02	0.01	0.12	0.00	0.00	0.05	0.00	0.00	1
2	3.54	12.62	5.47	1.72	2.16	0.94	1.03	0.62	0.27	0.56	0.14	0.06	0.40	0.06	0.03	0.24	0.02	0.01	0.16	0.01	0.00	2
5	8.86	68.86	29.85	4.29	11.78	5.11	2.57	3.40	1.47	1.41	0.78	0.34	1.01	0.35	0.15	0.60	0.10	0.04	0.41	0.04	0.02	5
7	12.41	128.41	55.67	6.00	21.97	9.52	3.60	6.33	2.75	1.97	1.46	0.63	1.41	0.65	0.28	0.84	0.18	0.08	0.57	0.07	0.03	7
10	17.72	248.59	107.76	8.58	42.53	18.43	5.15	12.26	5.31	2.82	2.83	1.23	2.02	1.26	0.54	1.20	0.36	0.15	0.82	0.14	0.06	10
15	4"			12.87	90.11	39.06	7.72	25.98	11.26	4.23	6.00	2.60	3.03	2.66	1.15	1.80	0.75	0.33	1.22	0.29	0.13	15
20	0.64	0.05	0.02	17.16	153.52	66.56	10.30	44.25	19.18	5.64	10.23	4.43	4.04	4.54	1.97	2.40	1.28	0.56	1.63	0.50	0.22	20
25	0.80	0.08	0.03				12.87	66.90	29.00	7.05	15.46	6.70	5.04	6.86	2.97	3.00	1.94	0.84	2.04	0.76	0.33	25
30	0.96	0.11	0.05				15.45	93.77	40.65	8.46	21.67	9.39	6.05	9.61	4.17	3.60	2.72	1.18	2.45	1.06	0.46	30
35	1.12	0.14	0.06				18.02	124.75	54.08	9.87	28.83	12.50	7.06	12.79	5.54	4.20	3.61	1.57	2.85	1.41	0.61	35
40	1.28	0.19	0.08				20.60	159.75	69.25	11.28	36.92	16.01	8.07	16.37	7.10	4.80	4.63	2.01	3.26	1.80	0.78	40
45	1.44	0.23	0.10							12.69	45.92	19.91	9.08	20.37	8.83	5.40	5.76	2.50	3.67	2.24	0.97	45
50	1.60	0.28	0.12							14.09	55.82	24.20	10.09	24.75	10.73	6.00	7.00	3.03	4.08	2.73	1.18	50
60	1.92	0.39	0.17							16.91	78.24	33.92	12.11	34.70	15.04	7.20	9.81	4.25	4.89	3.82	1.66	60
70	2.24	0.52	0.23							19.73	104.09	45.12	14.12	46.16	20.01	8.40	13.05	5.66	5.71	5.09	2.21	70
75	2.40	0.59	0.26							21.14	118.27	51.27	15.13	52.45	22.74	9.00	14.82	6.43	6.11	5.78	2.51	75
80	2.56	0.67	0.29							22.55	133.29	57.78	16.14	59.11	5.62	9.60	16.71	7.24	6.52	6.51	2.82	80
90	2.88	0.83	0.36							25.37	165.78	71.87	18.16	73.52	31.87	10.81	20.78	9.01	7.34	8.10	3.51	90
100	3.20	1.01	0.44										20.18	89.36	38.74	12.01	25.26	10.95	8.15	9.85	4.27	100
125	4.00	1.53	0.66										25.22	135.09	58.56	15.01	38.18	16.55	10.19	14.89	6.45	125
150	4.80	2.14	0.93										30.26	189.35	82.08	18.01	53.52	23.20	12.23	20.87	9.05	150
175	5.60	2.85	1.24													21.01	71.20	30.86	14.27	27.76	12.04	175
200	6.40	3.65	1.58													24.01	91.17	39.52	16.30	35.55	15.41	200
250	8.00	5.52	2.39													30.01	137.83	59.75	20.38	53.75	23.30	250
300	9.60	7.74	3.36																24.46	75.34	32.66	300
350	11.20	10.30	4.46																			350
400	12.80	13.19	5.72																			400
450	14.40	16.40	7.11																			450
500																						500
750																						750
1000																						1000
1250																						1250
1500																						1500
2000																						2000

NOTE: HYDROSEAL recommends that Flow Velocities be maintained at or below 5 feet per second in large diameter piping systems (i.e. 6" diameter and larger) to minimize the potential for hydraulic shock. Refer to section HYDROSEAL engineering section entitled "Hydraulic Shock" for additional information. Friction loss data based on utilizing mean wall dimensions to determine average ID; actual ID may vary.

PVC AND CPVC TUBES

SDR 21 Flow Velocity & Friction Loss

TABLE 1

SDR 21		SDR 21 FLOW VELOCITY & FRICTION LOSS														SDR 21				
Flow Rate (Gallons per Minute)	GPM	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		Flow Rate (Gallons per Minute)	GMP	
		Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)	Flow Velocity (ft./sec.)	Friction Loss (psi/100ft)			
1		0.49	0.16	0.07	0.30	0.05	0.02	0.19	0.01	0.01	0.14	0.01	0.00	0.09	0.00	0.00	0.00	0.04	0.00	0.00
2		0.99	0.56	0.24	0.60	0.17	0.07	0.37	0.05	0.02	0.28	0.03	0.01	0.18	0.01	0.00	0.12	0.00	0.00	0.00
5		2.46	3.06	1.33	1.49	0.91	0.39	0.93	0.29	0.12	0.71	0.15	0.06	0.45	0.05	0.02	0.31	0.02	0.01	0.00
7		3.45	5.71	2.48	2.09	1.69	0.73	1.30	0.53	0.23	0.99	0.27	0.12	0.63	0.09	0.04	0.43	0.04	0.02	0.01
10		4.93	11.06	4.80	2.99	3.27	1.42	1.86	1.03	0.45	1.41	0.53	0.23	0.90	0.18	0.08	0.61	0.07	0.03	0.01
15		7.59	23.44	10.16	4.48	6.93	3.00	2.79	2.18	0.95	2.12	1.12	0.49	1.35	0.37	0.16	0.92	0.15	0.06	0.02
20	0.50	9.86	39.94	17.31	5.97	11.81	5.12	3.72	3.72	1.61	2.83	1.91	0.83	1.80	0.64	0.28	1.23	0.25	0.11	0.04
25	0.62	0.04	0.02	5"	7.47	17.85	7.74	4.65	5.63	2.44	3.53	2.89	1.25	2.25	0.97	0.42	1.53	0.38	0.16	0.06
30	0.75	0.06	0.03	0.01	8.96	25.02	10.85	5.58	7.89	3.42	4.24	4.05	1.75	2.70	1.35	0.59	1.84	0.53	0.23	0.12
35	0.87	0.08	0.04	0.01	10.45	33.28	14.43	6.51	10.49	4.55	4.94	5.38	2.33	3.15	1.80	0.78	2.15	0.71	0.31	0.12
40	1.00	0.10	0.04	0.02	12.43	43.00	19.43	7.43	13.44	5.83	5.65	6.89	2.99	3.60	2.31	1.00	2.45	0.90	0.39	0.15
45	1.12	0.13	0.05	0.02	14.43	54.00	25.02	8.36	16.71	7.25	6.36	8.57	3.72	4.05	2.87	1.24	2.76	1.12	0.49	0.19
50	1.25	0.15	0.07	0.02	16.71	67.00	31.25	9.29	20.31	8.81	7.06	10.42	4.52	4.50	3.49	1.51	3.06	1.37	0.59	0.23
60	1.50	0.21	0.09	0.03	20.31	84.00	39.06	10.42	25.02	11.00	8.48	14.60	6.33	5.41	4.89	2.12	3.68	1.91	0.83	0.32
70	1.75	0.29	0.12	0.04	25.02	104.00	49.00	11.00	31.25	12.00	9.89	19.43	8.42	6.31	6.50	2.82	4.29	2.55	1.10	0.42
75	1.87	0.32	0.14	0.05	28.25	125.00	60.00	12.00	37.50	13.00	10.59	22.08	9.57	6.76	7.39	3.20	4.60	2.89	1.25	0.48
80	2.00	0.37	0.16	0.06	31.25	148.00	72.00	13.00	43.75	14.00	12.00	25.02	10.85	7.21	8.32	3.61	4.90	3.26	1.41	0.54
90	2.24	0.46	0.20	0.07	35.00	173.00	84.00	14.00	50.00	15.00	13.00	28.25	12.00	8.11	10.35	4.49	5.52	4.06	1.76	0.67
100	2.49	0.55	0.24	0.09	39.06	200.00	99.00	15.00	56.25	16.00	14.00	31.25	13.00	9.01	12.58	5.46	6.13	4.93	2.14	0.82
125	3.12	0.84	0.36	0.13	49.00	250.00	125.00	16.00	70.00	18.00	15.00	37.50	15.00	10.00	15.00	6.00	7.00	5.00	2.50	1.00
150	3.74	1.17	0.51	0.18	60.00	300.00	150.00	17.00	84.00	20.00	16.00	43.75	17.00	11.00	17.00	7.00	8.00	6.00	3.00	1.25
175	4.36	1.56	0.68	0.24	72.00	360.00	180.00	18.00	100.00	22.00	17.00	50.00	19.00	12.00	20.00	8.00	9.00	7.00	3.50	1.50
200	4.99	2.00	0.87	0.31	84.00	420.00	210.00	19.00	117.00	24.00	18.00	57.00	21.00	13.00	22.00	9.00	10.00	8.00	4.00	1.75
250	6.24	3.02	1.31	0.47	104.00	510.00	255.00	20.00	139.00	27.00	19.00	67.00	23.00	14.00	25.00	10.00	11.00	9.00	4.50	2.00
300	7.48	4.23	1.84	0.65	125.00	600.00	300.00	21.00	164.00	30.00	20.00	78.00	25.00	15.00	28.00	11.00	12.00	10.00	5.00	2.25
350	8.73	5.63	2.44	0.87	148.00	700.00	350.00	22.00	191.00	33.00	21.00	90.00	27.00	16.00	31.00	12.00	13.00	11.00	5.50	2.50
400	9.98	7.21	3.13	1.12	173.00	810.00	400.00	23.00	220.00	36.00	22.00	104.00	29.00	17.00	34.00	13.00	14.00	12.00	6.00	2.75
450	11.21	8.97	3.89	1.39	200.00	930.00	450.00	24.00	250.00	40.00	23.00	120.00	31.00	18.00	37.00	14.00	15.00	13.00	6.50	3.00
500					225.00	1050.00	500.00	25.00	281.00	45.00	24.00	139.00	33.00	19.00	40.00	15.00	16.00	14.00	7.00	3.25
750					350.00	1575.00	750.00	26.00	420.00	60.00	25.00	200.00	36.00	20.00	50.00	16.00	17.00	15.00	7.50	3.50
1000					460.00	2080.00	1000.00	27.00	560.00	80.00	26.00	264.00	39.00	21.00	63.00	17.00	18.00	16.00	8.00	3.75
1250					570.00	2625.00	1250.00	28.00	700.00	105.00	27.00	332.00	42.00	22.00	78.00	18.00	19.00	17.00	8.50	4.00

NOTE: HYDROSEAL recommends that Flow Velocities be maintained at or below 5 feet per second in large diameter piping systems (i.e. 6" diameter and larger) to minimize the potential for hydraulic shock. Refer to section HYDROSEAL engineering section entitled "Hydraulic Shock" for additional information. Friction loss data based on utilizing mean wall dimensions to determine average ID; actual ID may vary.

PVC AND CPVC TUBES

SDR 41 Flow Velocity & Friction Loss

TABLE 1

SDR 41 FLOW VELOCITY & FRICTION LOSS									
SDR 41					SDR 41				
Flow Rate (Gallons per Minute)	Flow Velocity (ft./sec.)	Friction Loss (Ft. Water/ 100ft)	Friction Loss (psi/ 100ft)	Flow Velocity (ft./sec.)	Friction Loss (Ft. Water/ 100ft)	Friction Loss (psi/ 100ft)	Flow Velocity (ft./sec.)	Friction Loss (Ft. Water/ 100ft)	Friction Loss (psi/ 100ft)
18"					20"				
24"					24"				
GMP									
750	1.05	0.02	0.01						
1000	1.40	0.04	0.02						
1250	1.75	0.05	0.02	1.42	0.03	0.01			
1500	2.10	0.08	0.03	1.70	0.05	0.02	1.18	0.02	0.01
2000	2.81	0.13	0.06	2.27	0.08	0.03	1.58	0.03	0.01
2500	3.51	0.20	0.08	2.84	0.12	0.05	1.97	0.05	0.02
3000	4.21	0.27	0.12	3.40	0.16	0.07	2.37	0.07	0.03
3500	4.91	0.36	0.16	3.98	0.22	0.09	2.76	0.09	0.04
4000	5.61	0.47	0.20	4.55	0.28	0.12	3.16	0.12	0.05
4500	6.31	0.58	0.25	5.11	0.35	0.15	3.55	0.14	0.06
5000				5.68	0.42	0.18	3.95	0.17	0.08
5500				6.25	0.50	0.22	4.34	0.21	0.09
6000				6.82	0.59	0.26	4.73	0.24	0.11
7000							5.52	0.32	0.14
7500							5.92	0.37	0.16
8000							6.31	0.42	0.18
8500							6.71	0.47	0.20

NOTE: Harvel recommends that Flow Velocities be maintained at or below 5 feet per second in large diameter piping systems (i.e. 6" diameter and larger) to minimize the potential for hydraulic shock. Refer to section Harvel engineering section entitled "Hydraulic Shock" for additional information. Friction loss data based on utilizing mean wall dimensions to determine average ID; actual ID may vary. Harvel Plastics, Inc. 2007 All Rights Reserved