High Standard Pipe

High Standard Pipe®

uPVC & PVC Pipes Catalogue

TÜV CERT
ISO-9001:2008

High Standard Pipe

Contents

History of excellence

The High Standard Pipe (HSP) is a fine example of how success can be achieved when a company is committed to excellence in every area of its operations.

Be it a new product launch, human resources development, investment in the latest technologies, upgrading of manufacturing facilities, formulation of policies and procedures, creation of healthy work environment or attending to a customer's needs, the goal of HSP has always been the same. HSP has committed to providing its customers with quality products and services that satisfies their realistic requirements.

Excellence in Products:

HSP manufactures and supplies uPVC pipe for Soil, Waste, Duct, Conduit and underground applications; Polyethylene pipes for irrigation and potable water distribution for residential and commercial buildings; pressure pipes for cold water supply, agricultural and industrial applications. HSP also offers electrical conduit and cable duct pipes as well as sewerage pipes. These products are manufactured to meet various international quality standards.

HSP stocks and supplies a range of uPVC fittings and joining materials which complement the various pipe systems.

Excellence in meeting international standards

Proof of HSP's commitment to quality can be seen from the fact that its products meet the high internationally recognized standards of manufacture. These Standard's include BS, ASTM, DIN, NEMA and AS specifications.

Excellence in human resources

HSP takes pride in its team of highly experienced and skilled professionals. The team is committed to providing efficient and cost-effective solutions for customers backed by reliable after-sales support.

History of excellence

HSP has continuous in-house training programes to update the skills of its professionals so that they continue to perform to they very high standards expected of them.

Excellence in infrastructure

HSP developed a very sophisticated manufacturing facility and the company constantly invests in the latest advancements in technology. These investments not only ensure superior products for our customers but also enhance our leadership position in the region.

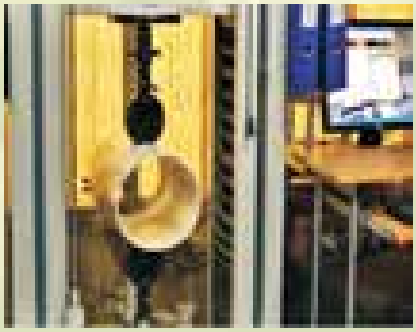
The company's laboratory is one of the best in the region and is equipped with modern testing apparatus. The company's products are quality tested by independent labs from PAK, UK, and USA to meet the expected high international standards.

HSP also has a well-equipped workshop with skilled technician to fabricate both conventional PVC fittings as well as other specific requirements of customers.

Excellence through customer satisfaction

We say the customer is the best judge. HSP is proud to have a long list of satisfied customers, most of them engaged in the key sectors of developing Afghanistan's economy and infrastructure. The customers include UNICEF, DACAAR, US Corps, Ministry of Water & Power, Ministry of Urban Development and PRT.

Excellence in the future



HSP is committed to sta at the forefront of the plastic pipes industry in the region. The company shall continue to expand, further enhance its products, invest in quality human resources as well as technology and continue its unwavering commitment to the customer.

Standards

& Range of HSP Pressure & Non-Pressure Pipe

PRESSURE PIPES:

ASTM -D 1785-94 Sch. 40, Sch. 80 and Sch. 120

ASTM D-2241 SDR Series

BS-3505-86 Class B, C, D and E

NON - PRESSURE PIPE :

BS - 3505 Class O

DIN 19534

SEWERAGE, SOIL & DRAIN:

ASTM D-2664 DWV

DIN 19531

BS 5255 THERMOPLASTIC WASTE PIPE

BS 4514 Soil and Ventilization

BS 4660 & 5481 Underground Sewerage

ELECTRIC CONDUIT:

NEMA TC-2, TC-4, TC-6, TC-8, ASTM F 512, ANSI/UL 651a

BS - 6099

High Standard Pipe

ISO-9001:2008

CHEMICAL RESISTANCE OF HSP PVC & uPVC PIPES:

PVC & uPVC Pipes are highly resistant to salt water acids and alkalis. It is not recommended for use with organic ester, ketones, chlorinated solvents aromatic hydrocarbon and low molecular weight alcohols.

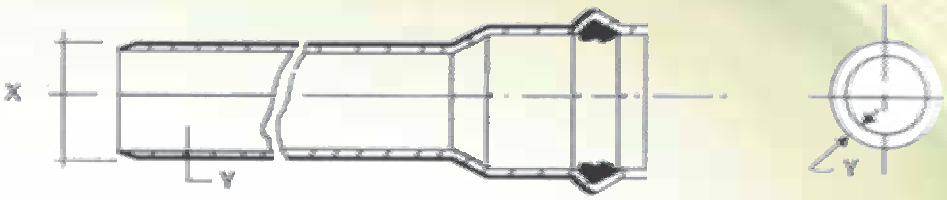
Resistance of PVC & uPVC Pipes to common chemicals under the conditions.

Mineral Acids	Hydrochloric Acid 30% Sulphuric Acid 50% Sulphuric Acid 98%	+ + +
Alkalis	Ammonium Hydroxide Calcium Hydroxide Sodium Hydroxide	+ + +
Salts	Calcium Chloride Potassium Chloride Sodium Bicarbonate Sodium Chloride Sodium Phosphate Sodium Sulphate	+ + + + + +
Oxidizing Agents / Disinfectants	Sodium Hydrochloride (Bleach Solution) Chlorine Water Calcium Hypochlorite – Soln. 18%	+ + +
Organic Acids	Acetic Acid – 10% Citric Acid 25% Hydroxyl Acetic Acid	+ + +
Oil & Derived Products	Diesel Fuel Gasoline Lubricating & Thread Cutting Oils Motor Oil	+ + + +
Solvents	Acetone Methyl ketone Toluene Trichloroethylene Turpentine Xylene Soaps & Detergents	- - - - + - +
Gases	Ammonia Carbon Dioxide Natural Gas Oxygen	

High Standard Pipe

British standard

1.1 uPVC Underground & Sewer Pipe



BS 4660				
Nominal Size mm	Outside Diameter (X) mm		Wall Thickness (Y) mm	
	Minimum	Maximum	Minimum	Maximum
110 (4”)	110.0	110.4	3.2	3.8
160 (6”)	160.0	160.6	4.1	4.8

BS 5481				
Nominal Size mm	Outside Diameter (X) mm		Wall Thickness (Y) mm	
	Minimum	Maximum	Minimum	Maximum
200	200.0	200.6	4.9	5.6
250	250.0	250.7	6.1	7.0
315	315.0	315.9	7.7	8.7
400	400.0	401.0	9.8	11.0

Manufactured to : BS 4660 -(110) 4” (160) 6”
: BS 5481
Standard length : 5.8 & 6 meters
Colour : Golden Brown
Socket type : Solvent weld, Rubber Seal Ring & Plain-end

Note:

1. All commonly used dimensions normally ex-stock delivery for other sizes on request.

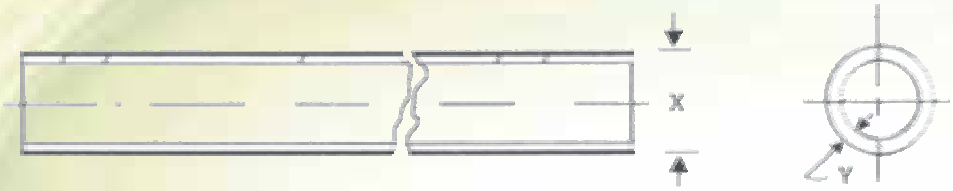
2. A wide range of compatible fittings manufactured to DIN 19534 are available.

3. A wide range of compatible fittings manufactured to BS 4660 by UK is available .

High Standard Pipe

British standard

1.2 uPVC Electrical Conduit



BS – 6099 HSP uPVC & PVC Electric Conduit				
Nominal Size	**Outer Diameter (mm)**		**Wall Thickness (mm)**	
Inch	Min.	Max.	Min.	Max
1/2	17.0	17.3	0.96	1.16
3/4	21.2	21.5	1.09	1.29
1	26.6	26.9	1.16	1.36
1 1/4	33.4	33.7	1.44	1.67
1 1/2	42.1	42.4	1.60	1.84
2	60.2	60.5	1.70	1.90
3	88.7	89.1	1.80	2.00
4	114.1	114.5	1.90	2.10

Manufactured to : BS 6099

Standard length : 2.9 meres / 3 meters

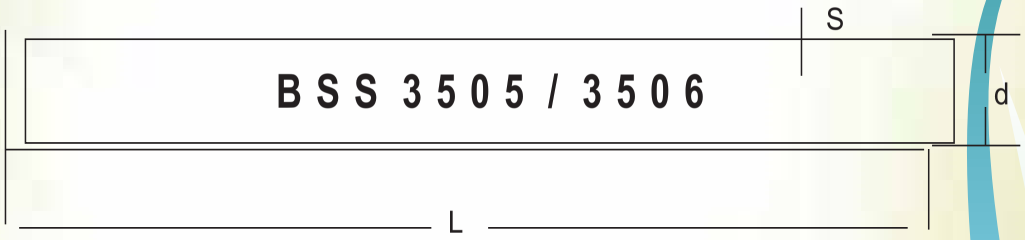
Color : Black or white

Socket : Solvent weld

Note:

1. Non-standard lengths and colors can be manufactured to meet customer's exact requirements.

British standard



use

Nominal Size	Outside Diameter		Wall Thickness (S)							
			Class B 6-0 bar		Class C 9-0 bar		Class D 12-0 bar		Class E 15-0 bar	
Inches	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
½”	21.2	21.5							1.7	2.1
3/4”	26.6	26.9							1.9	2.5
1”	33.4	33.7							2.2	2.7
1 1/4”	42.1	42.4					2.2	3.2	2.7	3.2
1 ½”	48.1	48.4					2.5	3.0	3.1	3.7
2”	60.2	60.5			2.5	3.0	3.1	3.7	3.9	4.5
2 ½”	75.0	75.3			3.0	3.5	3.9	4.5	4.8	5.5
3”	88.7	89.1	2.9	3.4	3.5	4.1	4.6	5.3	5.7	6.6
4”	114.1	114.5	3.4	4.0	4.5	5.2	6.0	6.9	7.3	8.4
5”	140.0	140.4	3.8	4.4	5.5	6.4	7.3	8.4	9.0	10.4
6”	168.0	168.5	4.5	5.2	6.6	7.6	8.8	10.2	10.8	12.5
8”	218.8	219.4	5.3	6.1	7.8	9.0	10.3	11.9	12.6	14.5
10”	272.6	273.4	6.6	7.6	9.7	11.2	12.8	14.8	15.7	18.1
12”	323.4	324.3	7.8	9.0	11.5	13.3	15.2	17.5	18.7	21.6
14”	355.0	356.0	8.5	9.8	12.6	14.5	16.7	19.2	20.5	23.6
16”	405.9	406.9	9.7	11.2	14.5	16.7	19.0	21.9	23.4	27.0
18”	456.7	457.7	11.0	12.7	16.3	18.8	21.4	24.6	-	-
20”	507.5	508.5	12.2	14.1	18.1	20.9	-	-	-	-
24”	609.1	610.1	14.6	16.8	21.7	25.0	-	-	-	-

Where High Standard Pipe Goes, Water Flows!

TECHNICAL SPECIFICATIONS

High Standard Pipe

ISO-9001:2008

High Standard Pipe

British standard

1.3 uPVC Pressure (water supply, irrigation & industrial use) BS 3505 / 3506

Nominal Size	Outside Diameter		Wall Thickness (S)					
			Class O		Class 6		Class 7	
Inches	Min	Max	Min	Max	Min	Max	Min	Max
½”	21.2	21.5			2.8	3.3	3.7	4.3
3/4”	26.6	26.9			2.9	3.4	3.9	4.5
1”	33.4	33.7			3.4	4.0	4.5	5.2
1 1/4”	42.1	42.4			3.6	4.2	4.8	5.5
1 ½”	48.1	48.4			3.7	4.3	5.1	5.9
2”	60.2	60.5	1.8	2.2			5.5	6.3
2 ½”	75.0	75.3	1.8	2.2				
3”	88.7	89.1	1.8	2.2				
4”	114.1	114.5	1.8	2.2				
6”	140.0	140.4	2.3	2.8				
8”	168.0	168.5	3.1	3.7				
10”	218.8	219.4	3.1	3.7				

Pressure ratings : Designated by the different classes at 20° C

Class	‘B’	‘C’	‘D’	‘E’	‘O’
Bar	6	9	12	15	Non Pressure

Note : 2% of rated pressure should be reduced for each 1°C rise above 20°C

Pressure Rating Bar		
Size-inch	Class ‘6’	Class ‘7’
½	28	40
3/4	22	32
1	24	32
1 1/4	20	28
1 ½	18	25
2	-	22

Manufactured to : BS 3505 / 3506 Classes B, C, D &E, BS 3506, 1969 Classes O, 6 & 7

Standard length : 5.8 and 6 meters

Color : Dark gray (except Class O which is white)

Socket type : Solvent weld

Note: : Plain-end

1. A wide range of compatible fittings manufactured to BS 4346 part 1

British standard

1.3 uPVC Pressure (water supply, irrigation & industrial use)

APPROXIMATE WEIGHTS OF PVC PIPE PER METER

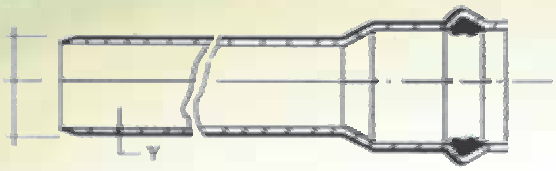
Nominal Size Inches	Class - B Kg/m	Class - C Kg/m	Class - D Kg/m	Class - E Kg/m	Class - 7 Kg/m
3/8	-	-	-	0.11	0.20
½	-	-	-	0.16	0.30
3/4	-	-	-	0.22	0.41
1	-	-	-	0.32	0.60
1 1/4	-	-	0.41	0.50	0.84
1 ½	-	-	0.54	0.65	1.02
2	-	0.68	0.82	1.02	1.42
2 ½	-	1.01	1.29	1.57	-
3	1.18	1.40	1.81	2.20	-
4	1.77	2.31	3.01	3.61	-
5	2.41	3.45	4.49	5.47	-
6	3.44	4.97	6.52	7.89	-
7	4.55	6.66	8.60	10.41	-
8	5.25	7.66	9.97	12.08	-
9	6.54	9.54	12.46	15.06	-
10	8.19	11.86	15.47	18.75	-
12	11.47	16.71	21.76	26.48	-
14	13.74	20.09	26.27	31.88	-
16	17.90	26.43	34.15	41.61	-
18	22.80	33.34	43.33	-	-
20	28.08	41.16	-	-	-
22	34.02	49.80	-	-	-
24	40.41	59.27	-	-	-

Where High Standard Pipe Goes, Water Flows!

High Standard Pipe

DIN standard

2.1 uPVC Drain Pipe (above ground)



DIN 19531				
Nominal Size mm	Mean Outside Diameter (X) mm		Wall Thickness (Y) mm	
	Minimum	Maximum	Minimum	Maximum
40	40.0	40.2	1.8	2.2
50	50.0	50.2	1.8	2.2
75	75.0	75.3	1.8	2.2
110	110.0	110.3	2.2	2.7
160	160.0	160.4	3.2	3.8

Manufactured to : DIN 19531
Standard length : 4,5.8 & 6 metres
Colour : Gray
Socket type : Plain-end, Solvent Weld or Rubber Seal Ring (75mm and above)

Note:

All commonly used dimensions normally available, delivery for other sizes on request.

2.2 uPVC Pressure Pipe

uPVC Pipe DIN 8061 / 62:19532												
Nominal Size mm	Outside Diameter		Series									
			1		2		3		4		5	
			W.T.		W.T.		W.T.		W.T.		W.T.	
	Min mm	Max mm	Min mm	Max mm	Min mm	Max mm	Min mm	Max mm	Min mm	Max mm	Min mm	Max mm
20	20	20.2									1.5	1.9
25	25	25.2							1.5	1.9	1.9	2.3
32	32	32.2							1.8	2.2	2.4	2.9
40	40	40.2					1.8	2.2	1.9	2.3	3.0	3.5
50	50	50.2					1.8	2.2	2.4	2.9	3.7	4.3
63	63	63.2					1.9	2.3	3.0	3.5	4.7	5.4
75	75	75.3			1.8	2.2	2.2	2.7	3.6	4.2	5.6	6.4
90	90	90.3			1.8	2.2	2.7	3.2	4.3	5.0	6.7	7.6
110	110	110.3	1.8	2.2	2.2	2.7	3.2	3.8	5.3	6.1	8.2	9.3
160	160	160.4	1.8	2.2	3.2	3.8	4.7	5.4	7.7	8.7	11.9	13.3
200	200	200.4	1.8	2.2	4.0	4.6	5.9	6.7	9.6	10.8	14.9	16.6
225	225	225.5	1.8	2.2	4.5	5.2	6.6	7.5	10.8	12.1	16.7	18.6
250	250	250.5	2.0	2.4	4.9	5.6	7.3	8.3	11.9	13.3	18.6	20.7
280	280	280.6	2.3	2.8	5.5	6.3	8.2	9.3	13.4	15.0	20.8	23.1
315	315	315.6	2.5	3.0	6.2	7.1	9.2	10.4	15.0	16.7	23.4	26.0
400	400	400.7	3.2	3.8	7.9	8.9	11.7	13.1	19.1	21.3	29.7	32.9

Pressure rating ar 20°C

Pipe Series	1	2	3	4	5
Bar	-	4	6	10	16

Manufactured to : DIN 8061 / 62

Standard length : 5.8 & 6 meters

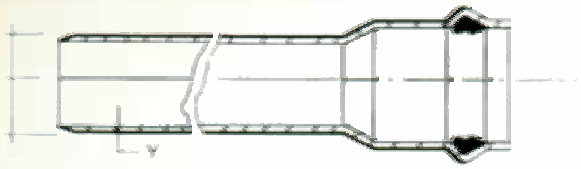
Colour : Gray / Dark Gray

Socket type : Solvent Weld or Rubber Seal Ring Produced on request

Note:

1. Non-standard lengths and colours can be manufactured to meet customer's exact requirements.
2. All commonly used dimensions normally available, delivery for other sizes on request.

2.3 uPVC Sewer Pipe (gravity)



Nominal Size mm	Outside Diameter (X) mm		DIN 19534 Wall Thickness (Y) mm	
	Minimum	Maximum	Minimum	Maximum
110	110.0	110.3	3.0	3.5
160	160.0	160.4	3.6	4.2
200	200.0	200.4	4.5	5.2
250	250.0	250.5	6.1	7.0
315	315.0	315.6	7.7	8.7
400	400.0	400.7	9.8	11.0

Manufactured to : DIN 19534
Standard length : 5.8 & 6 metres
Colour : Golden Brown
Socket type : Solvent Weld or Rubber Seal Ring

Note:

1. All commonly used dimensions normally available, delivery for other sizes on request.
2. A wide range of compatible fittings manufactured to EN 1401 are available.

Nema standard

4.1 PVC Electrical Conduit & Tubing and Utilities Duct

These Standards specify PVC Polyvinyl chloride utilities duct for underground installation for telecommunications and electrical wire & cable. They also specify electrical plastic conduit and tubing for above and underground use.

NEMA TC-2 ELECTRICAL CONDUIT:

Nominal Pipe Size	Outside Dia	EPT A PVC		EPC 40 PVC		EPC 80 PVC	
		W/Thick	N. Weight	W/Thick	N. Weight	W/Thick	N. Weight
Inch	mm	Mm	Kgs/m	mm	Kgs/m	mm	Kgs/m
1/2"	21.34	1.52	0.155	2.77	0.248	3.73	0.309
3/4"	26.67	1.52	0.197	2.87	0.329	3.91	0.418
1"	33.4	1.52	0.255	3.38	0.483	4.55	0.614
1 1/4"	42.16	1.78	0.365	3.56	0.652	4.85	0.850
1 1/2"	48.26	2.03	0.468	3.68	0.779	5.08	1.030
2"	60.32	2.54	0.717	3.91	1.04	5.54	1.430
2 1/2"	73.02	2.79	0.952	5.16	1.65	7.01	2.180
3"	88.9	3.18	1.310	5.49	2.160	7.62	2.900
4"	114.3	3.81	2.00	6.02	3.070	8.56	4.260
5"	141.3	--	--	6.55	4.17	9.52	5.910
6"	168.28	--	--	7.11	5.410	10.97	8.130
8"	219.08	--	--	8.18	8.143	12.70	12.40

NEMA TC-6 and ASTM F 512 Rigid PVC Duct for Under ground installation:

Nominal Pipe Size	Outside Dia	PVC Type EB 20		PVC Type DB 60	
		W/Thick	N. Weight	W/Thick	N. Weight
Inch	mm	mm	Kgs/m	mm	Kgs/m
2"	60.32	1.52	0.463	1.52	0.465
3"	88.90	1.55	0.702	2.34	1.000
4"	114.3	2.08	1.170	3.07	1.650
5"	141.30	2.62	1.710	3.86	2.500
6"	168.28	3.18	2.530	4.62	3.570

Manufactured to : NEMA TC-2, NEMA TC-6 AND ASTM F 512
Standard length : 5.8 & 6 meters
Colour : Gray
Socket type : Solvent Weld

Note:

1. EPT (Electrical Plastic Tubing) - To be encased in concrete.
   EPC-40 (Electrical Plastic Conduit) - For Direct burial underground.
   EB (Encased Burial) - To be encased in concrete.
   DB (Direct Burial) - For direct burial underground.
2. Nominal Sizes from ½ in. to 1 ½ in. - Plain end.
   Nominal Sizes from 2 in. - One end with solvent weld socket.

High Standard Pipe

Nema standard

4.1 PVC Electrical Conduit & Tubing and Utilities Duct

NEMA TC-8 and ASTM F 512
Rigid PVC Extra Strength for under ground installation

Nominal Size	Metric Designators	Average Outside Dia	Type EB-35		Type DB-100		Type DB-120	
			W/Thick	N.Weight	W/Thick	N.Weight	W/Thick	N.Weight
		mm	mm	Kgs/m	mm	Kgs/m	mm	Kgs/m
1”	27	33.40	--	--	--	--	1.52	0.251
1 1/2”	41	48.26	--	--	--	--	1.52	0.369
2”	53	60.32	1.52	0.465	--	--	1.96	0.576
3”	78	88.90	1.93	0.847	2.84	1.160	3.00	1.290
4”	103	114.30	2.54	1.390	3.68	1.930	3.91	2.050
5”	129	141.30	3.20	2.090	4.55	2.940	4.85	3.120
6”	155	168.28	3.020	3.020	5.41	4.170	5.77	4.420

Manufactured to : NEMA TC-8 ASTM F 512
Standard length : 5.8 & 6 meters
Colour : Gray
Socket type : Solvent Weld

Note:

1. EPT (Electrical Plastic Tubing) - To be encased in concrete.
   EPC-40 (Electrical Plastic Conduit) - For Direct burial underground.
   EB (Encased Burial) - To be encased in concrete.
   DB (Direct Burial) - For direct burial underground.
2. Nominal Sizes from ½ in. to 1 ½ in. - Plain end.
   Nominal Sizes from 2 in. - One end with solvent weld socket.

ASTM standard

4.1 ASTM D 1785, ASTM D 2665

Nominal Size	Outside Diameter (mm)		Sch. 40 Dimensions			Sch. 80 Dimensions			Sch. 120 Dimensions		
			Min wall thikness		Max. W.P	Min wall thikness		Max. W.P	Min wall thikness		Max. W.P
	Inch	mm	Inch	mm	PSI	Inch	mm	PSI	Inch	mm	PSI
1/2"	0.840	21.336	0.109	2.769	600	0.147	3.734	850	0.17	4.318	1010
3/4"	1.050	26.670	0.113	2.870	480	0.154	3.912	690	0.17	4.318	770
1"	1.315	33.401	0.133	3.378	450	0.179	4.547	630	0.2	5.080	720
1-1/4"	1.660	42.164	0.14	3.556	370	0.191	4.851	520	0.215	5.461	600
1-1/2"	1.900	48.260	0.145	3.683	330	0.2	5.080	470	0.225	5.715	540
2"	2.375	60.325	0.154	3.912	280	0.218	5.537	400	0.25	6.350	470
2-1/2"	2.875	73.250	0.203	5.156	300	0.276	7.010	420	0.3	7.620	470
3"	3.500	88.900	0.216	5.486	260	0.3	7.620	370	0.35	8.890	440
4"	4.500	114.300	0.237	6.020	220	0.337	8.560	320	0.437	11.100	430
5"	5.563	141.300	0.258	6.553	190	0.375	9.525	290	-	-	-
6"	6.625	168.275	0.28	7.112	180	0.432	10.973	280	0.562	14.275	370
8"	8.625	219.750	0.322	8.179	160	0.5	12.700	250	0.718	18.237	360
10"	10.750	273.050	0.365	9.271	140	0.593	15.062	230	-	-	-
12"	12.750	323.850	0.406	10.312	130	0.687	17.450	230	-	-	-
14"	14.000	355.600	0.437	11.125	130	0.75	19.050	220	-	-	-
16"	16.000	406.400	0.5	12.700	130	0.843	21.412	220	-	-	-
18"	18.000	457.200	0.562	14.275	130	0.937	23.800	220	-	-	-
20"	20.000	508.000	0.593	15.062	120	1.031	26.187	220	-	-	-
22"	22.000										
24"	24.000	609.600	0.687	17.450	120	1.218	30.937	210	-	-	-

High Standard Pipe

ASTM standard

4

The specification ASTM D 1785-88 covers unplasticised polyvinyl chloride (PVC) pipes, made in SCH-40 and 80 for water distribution and irrigation systems.

The specification ASTM D 1785-88 covers unplasticised polyvinyl chloride (PVC) pipe for Drain, Waste and Vent applications.

Nominal Size	Outside Diameter (mm)		Sch. 40 Dimensions				Sch. 80 Dimensions			
			Min wall thikness		Nominal Weight	Max. W.P	Min wall thikness		Nominal Weight	Max. W.P
	Inch	mm	Inch	mm	Kg/m	PSI	Inch	mm	Kg/m	PSI
1/2"	0.840	21.336	0.109	2.769	0.248	600	0.147	3.734	0.309	850
3/4"	1.050	26.670	0.113	2.870	0.329	480	0.154	3.912	0.418	690
1"	1.315	33.401	0.133	3.378	0.483	450	0.179	4.547	0.614	630
1-1/4"	1.660	42.164	0.14	3.556	0.652	370	0.191	4.851	0.850	520
1-1/2"	1.900	48.260	0.145	3.683	0.799	330	0.2	5.080	1.030	470
2"	2.375	60.325	0.154	3.912	1.040	280	0.218	5.537	1.430	400
2-1/2"	2.875	73.250	0.203	5.156	1.691	300	0.276	7.010	2.233	420
3"	3.500	88.900	0.216	5.486	2.160	260	0.3	7.620	2.910	370
4"	4.500	114.300	0.237	6.020	3.070	220	0.337	8.560	4.260	320
5"	5.563	141.300	0.258	6.553	4.277	190	0.375	9.525	6.069	290
6"	6.625	168.275	0.28	7.112	5.410	180	0.432	10.973	8.130	280
8"	8.625	219.750	0.322	8.179	8.150	160	0.5	12.700	12.682	250
10"	10.750	273.050	0.365	9.271	11.855	140	0.593	15.062	18.803	230
12"	12.750	323.850	0.406	10.312	15.676	130	0.687	17.450	25.870	230
14"	14.000	355.600	0.437	11.125	18.546	130	0.75	19.050	31.031	220
16"	16.000	406.400	0.5	12.700	22.891	130	0.843	21.412	38.631	220
18"	18.000	457.200	0.562	14.275	30.636	130	0.937	23.800	49.920	220
20"	20.000	508.000	0.593	15.062	35.988	120	1.031	26.187	61.085	220
24"	24.000	609.600	0.687	17.450	50.080	120	1.218	30.937	86.660	210

NOTE:

1. Working pressure indicated in psi is maximum value and is based on water temperature of 23° C.
2. Threading of only Schedule 80 pipe is recommended. For threaded pipe working pressure consult our Technical Sales Department
   Schedule 80 Pipes is supplied in Gray Color.
3. ASTM D2665 specifies PVC plastic Drain, Waste and Vent (DWV) pipes.
   Schedule 40 and DWV Pipe is supplied in White Color.

ASTM D 1785-94

Maximum Sustain and Burst Pressure Test Conditions for water at 23 C for PVC Pipe

Nominal Pipe Size	Sustain Pressure — Pressure Required for Test PSI			Burst Pressure — Pressure Required for Test PSI		
	Schedule 40	Schedule 80	Schedule 120	Schedule 40	Schedule 80	Schedule 120
½	1250	1780	2130	1910	2720	3250
3/4	1010	1440	1620	1540	2200	2470
1	950	1320	1510	1440	2120	2300
1 ½	690	990	1130	1060	1510	1720
2	580	850	990	890	1290	1510
3	590	790	930	840	1200	1420
4	470	680	900	710	1040	1380
6	370	590	780	560	890	1190
8	330	520	760	500	790	1160
10	300	490	770	450	750	1170
12	280	480	710	420	730	1090

ASTM D 1785-94

Outside Diameter, Wall Thickness & T olerances For PVC Pipe Schedule 40, 80 & 120

Nominal Dia	Outside Diameter (mm)		Tolerances (mm) for max. & min. (our of the roundness)		Wall Thickness (mm) Sch. 40		Sch. 80		Sch. 120	
	min.	max	Sch. 40 sizes 4" and over Sch. 80 sizes 8" and over	Sch. 40 sizes 3" and less Sch. 80 sizes 6" and less	min.	Tolerance	min.	Tolerance	min.	Tolerance
½	21.4	21.44	–	+0.2	2.77	+0.51	3.73	+0.51	4.32	+0.51
3/4	26.57	26.77	–	+0.25	2.87	+0.51	3.91	+0.51	4.32	+0.51
1	33.27	33.53	–	+0.25	3.38	+0.51	4.55	+0.53	5.08	+0.61
1 ½	48.11	48.41	–	+0.3	3.68	+0.51	5.08	+0.61	5.72	+0.68
2	60.17	60.47	–	+0.3	3.91	+0.51	5.54	+0.66	6.35	+0.76
3	88.7	89.10	–	+0.38	5.49	+0.66	7.62	+0.91	8.89	+1.07
4	114.07	114.53	+ 1.27	+0.38	6.02	+0.71	8.56	+1.02	11.10	+1.32
6	168.0	168.56	+ 1.27	+0.89	7.11	+0.86	10.97	+1.32	14.27	+1.70
8	218.7	219.46	+ 1.9	+1.14	8.18	+0.99	12.70	+1.52	18.24	+2.18
10	272.67	273.43	+ 1.9	+1.27	9.27	+1.12	15.06	+1.8	21.41	+2.56
12	323.47	324.23	+ 1.9	+1.52	10.31	+1.24	17.45	+2.08	25.4	+3.05

4.2 ASTM D 2241

The specification covers polyvinyl chloride (PVC) Pressre rated pipes (SDR-Series)

Nominal Size inch	Outside Diameter mm		Wall thickness (mm)											
			Standard Dimension Ratio (SDR)											
			41		32.5		26		21		17		13.5	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
½"	21.24	21.44											1.57	2.08
3/4"	26.57	26.77							1.52	2.03	1.57	208	1.98	2.49
1"	33.27	33.53					1.52	2.03	1.60	2.11	1.96	2.46	2.46	2.97
1 1/4"	42.03	42.29			1.52	2.03	1.63	2.13	2.01	2.52	2.49	3.00	3.12	3.63
1 ½"	48.11	48.41			1.52	2.03	1.85	2.36	2.29	2.80	2.84	3.35	3.58	4.09
2"	60.17	60.47			1.85	2.36	2.31	2.82	2.87	3.38	3.56	4.06	4.47	4.98
3"	88.70	89.10	2.16	2.67	2.74	3.25	3.43	3.94	4.24	4.75	5.23	5.87	6.58	7.37
4"	114.07	114.53	2.80	3.3	3.51	4.01	4.39	4.90	5.44	6.10	6.73	7.54	8.46	9.47
6"	168.00	168.56	4.11	4.62	5.18	5.79	6.48	7.26	8.03	9.00	9.91	11.10	12.47	13.97
8"	218.70	219.46	5.33	5.97	6.73	7.54	8.43	9.45	10.41	11.66	12.90	14.45		
10"		273	6.65		8.41		10.5		12.98					
12"		323.9	7.9		9.96		12.5		15.39					
14"		355.6	8.95				13.7							
16"		406.4	10.1				15.6							
18"		457.2	11.2				17.6							

Pressure rating at 23°C

Pipe - SDR	41	32.5	26	21	17	13.5
Rating - psi	100	125	160	200	250	315

Manufactured to : ASTM D 2241-88

Standard length : 5.8 & 6 meters

Colour : White

Socket type : Solvent Weld

Note:

The pipes will be manufactured as PVC - 1120

$$SDR = \frac{\text{Outside Diameter}}{\text{Minimum Wall Thickness}}$$

High Standard Pipe

PVC Pipe 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)/(cm2)(Sec.)(°C) BTU/in/hr/ft.2/°F Watt/m/°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 Pipe 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

High Standard Pipe

Installation & design guidelines

1. Jointing Procedure

1.2 Using Solvent Cement

High Standard Pipe

Where High Standard Pipe Goes, Water Flows!

Installation & design guidelines

1. Jointing Procedure

1.2 Using Solvent Cement

1. Cut the pipe square using a fine pitch and saw.
2. To remove burns use a medium file. The end of the pipe must be chamfered with a 2mm x 45° average chamfer.
3. The pipe and fitting should be marked. This will help determine proper penetration of pipe into socket.
4.5.6. Lightly abrade pipe and fitting, then clean the contacting surfaces thoroughly by using a clean rag and cleaning fluid.
7. Apply sufficient Solvent Cement to pipe and fitting using a clean brush. The number of coats needed will vary depending on the diameter of pipe and fitting. About one or two coats are usually needed.
8. Assemble joint immediately. Avoid twisting and hold the pipe and fitting together for 15 seconds for ½"& 60 seconds for 8" pipe. A pipe joining device should be used when pipe with a diameter of 6" or more is to be joined. This will ensure full entry of spigod.
9. Remove excess cement.
10 Close solvent cement tin tightly.
11. Clean brush after use.
12. DO NOT smoke near can, DO NOT leave can near open flame, AVOID skin contact, DO NOT inhale.

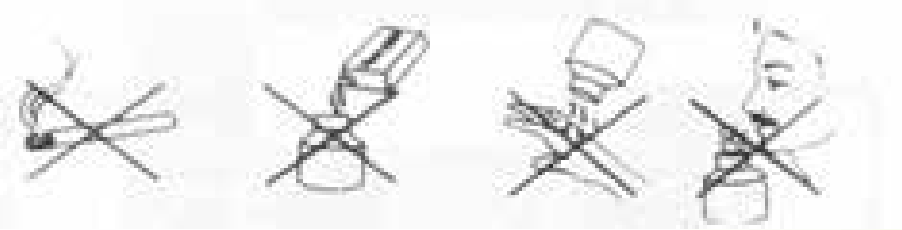


Table indicating approximate number of joints whichcan be made with standard size Lubricant, Cleaning Fluid and Solvent Cement:

Nominal Size (inch)	½ 1	1 1/4 - 2	3	4	6	8
* Lubricant 50mg	100	60	40	30	20	10
Cleaning Fluid 500 ml.	300	180	72	45	21	12
Solvent Cement 500 ml.	100	60	25	15	7	4

Notes:

All Solvent Cement must be carefully used in accordance with the instructions on the can. Never dilute with other fluids. Joint cannot be done properly in wet, oily or dirty conditions.

Drying Time will vary according to amount of Solvent Cement applied, ambeint temperature and testing pressure. Temperatures of more than 25°C (76°F) will reduce the jointing time from 3 minutes to approximately 1 minute. Fully rated pressure should not be applied for at least 24 hours.

WARNING: SMOKE TESTING OF uPVC IS RECOMMENDED BUT CARE MUST BE TAKEN AS CERTAIN SMOKE GENERATING DEVICES IN THE MARKET HAVE PRODUCTS OF COMBUTION WHICH ARE DETRIMENTAL TO PLASTIC PIPE WORK.

2. Underground Installation

2.1 General Requirements

Installation to be according to the relevant Codes of practice and to the manufacturer's recommendations.

- The trench should not be opened too far in advance of pipe laying and should be backfilled as soon as possible.

- If pipes are jointed above ground before being laid in the trench, they should be brought to th temperature of the ground and backfill material in order to avoid contraction.

- Excavation should be made under the bell of each pipe so that the entire length of the pipe, except the bell will be supported on the bottom of the trench.

- At any change of direction, anchoring by concrete blocks must be provided. A flexible membrane is recommended between concrete and fitting for protection.

- Mechanical remembers should only used above 300mm from the pipe crown.

- After testing, exposed joints should be filled by pad gravel, compacted and then backfilling should follow .

- For water distribution, disinfection of pipes is essential before the system is put into use (also some times during use). The pipe should be flushed (velocity at least 2 ft. per seconds), then refilled with chlorinated water with a dose of 50-100 ppm. At the end of 5 hours, chlorine residual should not be less than ppm.

2. Underground Installation

2.1 General Requirements

This recommended practice describes procedures for installing single wall thermoplastic pipe in excavated trenches. Consideration should be given to allowable deflection due to pipe/soil interactions.

When preparing the trench, certain conditions may be encountered which require special treatment in order to provide adequate bedding and foundation.

1. The trench width below the top of the pipe affects the soil load imposed upon the pipe. Therefore, this width should not be greater than that necessary to provide adequate room for joining the pipe and compacting the hunching and initial backfill.

2. Wjem unstable trench walls are encountered, this condition must be stabilized before laying the pipe. To obtain the desired lateral support for pipe laid, the trench width sould be a maximum of 5 pipe diameters, otherwise sheeting, trench box or any other method would be used to control such conditions. in some severe cases well points or under-drain may be used to control excessive ground water conditions.

3. The trench should be as narrow as possible. If trench width is greater than 6 pipe diameters, hunching and initial backfill should be compacted to at least 2.5 pipe diameters on either side of the pipe.

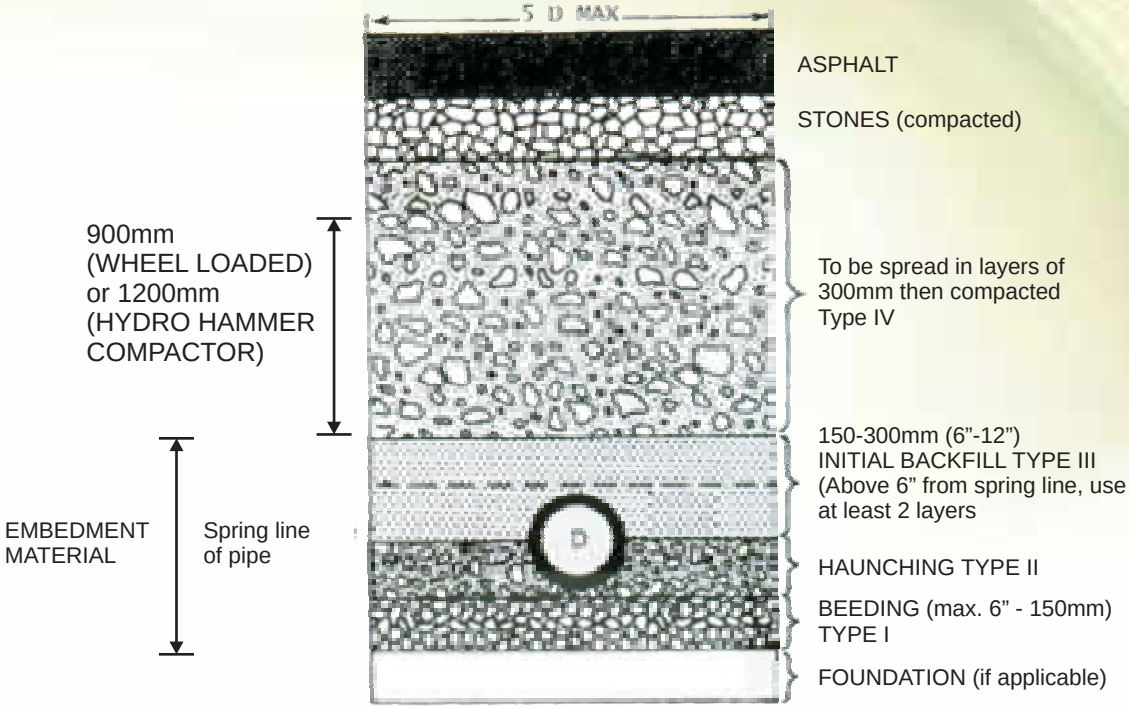
4. When an unstable trench, botton condition is encountered, it must be stabilized before laying pipe, or an alternative foundation should be utilized. A 150 mm layer of processed stone or gravel, of suitable grade and which the unstable soil will not be penetrate, should be used. This material should be comacted.

5. If the trench is over-excavated below a point of 150mm from the bottom of the pipe, but not beyond a point of 300mmm, it would be necessary for this area to be filled with an embedment material and compacted. However, if the trench is more than 300mm deeper than the bottom of the pipe, return fill and ram selected stone-free soil to within 100mm. Then proceed as in para 4.

6. Bedding material should be to drace along the entire length of the pipe to be installed. Differential setlement is to be avoided and blocking should not be used to bring the pipe to grade.

2. Underground Installation

2.3 Gravity Sewer



Materials used for bedding, hunching and initial backfill are as follows:

TYPE I Angular, 6mm to 12mm (1/4" to ½") graded stone. when used for bedding. a depth of 100mm to 150mm is generally sufficient to provide uniformity with little or no compaction due to the nature of angular particles. Type 1 is also suitable for hunching and initial backfill.

TYPE II Coarse sands and gravels with maximum particle size of 12mm (½"). This type is also suitable for bedding. However, when in use for hunching and initial backfill, place initial backfill in two stages in order to prevent movement of the pep: Stage 1- to the top of the pipe, Stage 2 to at least 150mm over the top of the pipe. Mechanical or hand tamping compaction should be used.

TYPE II Fine sand and clayey gravel. in bedding this type should be well compacted. In hunching and initial backfilling it should be used in the same way as Type II but with maximum compaction.

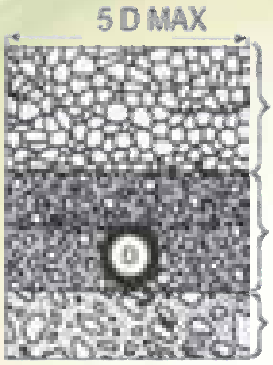
TYPE IV Earth and debris of rocks larger than 20mm (3/4") diameter and other materials. This type is not suitable for bedding, hunching or initial backfill. It is used for the filling itself to cover the trench. A layer of around 500mm (31.5") over the initial backfill before the trench is well loaded and a layer of about 1200mm (47") before utilizing a hydro-hammer during compaction.

Backfilling should be carried out between joints to pressure testing. After testing joint should be covered with TYPE I or TYPE II material, provided particles larger than 12mm (½") have been taken out. Then continue as mentioned above for the rest of the backfill.

2. Underground Installation

2.4 Pressure Pipe

Min. 600 (heavy over head Traffic) 300mm - 450mm is sufficient



Requirements for bedding and backfill is practically the same as sewer pipes except for few items:

a) Haunching and backfill materials are of 12mm (½") particle size of smaller and surround the pipe completely. Type "III" is recommended as materials, also type 1, provided particles are 12mm and smaller.

b) Sand and gravel containing a significant proportion of fine-grained material, such as silt and clay, should be compacted by hand, preferably by mechanical tamper.

c) During trench cover and fill - up, rocks of 76mm (3") and above must be removed; rolling equipment or heavy tempers should only be used to consolidate the final backfill.

d) When pipe has been assembled on top of the trench, it is advisable to cool the pipe to ground temperature before backfilling to prevent put-out due to thermal contraction.

e) When rubber-ring joints are used, suitable anchoring methods should be used to prevent excessive longitudinal or bending movement of the piping: anchor points are at all sudden changes in direction, such as elbows, tees, bends, etc.. It is necessary to withstand the pressure thrust.

f) If pipes are jointed above ground, they should remain undisturbed for 2 hours before being 'snaked' into the trench. Particular care should be taken to ensure pipes and jointing materials are throughly dry when following the jointing procedure.

In overall use, gravel with fines and sands in the best backfill material for pressure pipe. sand and gravel mixed with silts and clays, in which sand or gravel constitute at least 50% of the mixture, is also suitable.

IMPORTANT NOTE:
GRAVEL : Minimum grain size 6.4mm (1/4")
SAND : Individual grains visible to the naked eye with maximum particle size of 6.4mm (1/4")
SILT : Individual grain difficult to see with naked eye May be slightly plastic. Easily washed from finger. Low dry strength.

COMPENSATING FOR THERMAL EXPANSION

Thermoplastics exhibit a relatively high coefficient of thermal expansion (see Relative Properties Chart page 13 and 14)—as much as ten times that of steel. When designing plastic piping systems, expansion of long runs must be considered. Installation temperature versus working temperature or summer to winter extremes must be considered.

One area where extreme temperature variations can occur is in a polypropylene drain application. Temperature in waste systems depends on quantity and temperature of the waste liquids discharged into the system. In general, the quantities of wastes discharged through waste systems from laboratories in educational institutions will be relatively small (a few gallons at a time), while industrial laboratories and processing systems may discharge large quantities of very hot or very cold water.

There are several methods of controlling or compensating for thermal expansion of piping systems: taking advantage of offsets and change of direction in the piping and expansion joints.

1. Offsets—Most piping systems have occasional changes in direction which will allow the thermally induced length changes to be taken up in offsets of the pipe beyond the bends. Where this method is employed, the pipe must be able to float except at anchor points.

2. Expansion Joints—Expansion joints for pressure applications are generally expensive.

The expansion loops and offset tables as shown on following pages have been generated for elevated temperatures as noted beneath the table. If the change in temperature and working temperatures are lower than those used to derive expansion loop and offset tables, the figures will be conservative. These tables can be generated for any temperature and expansion by using the following equations and the modulus of elasticity and working stress at the given temperature.

Assume the pipe to be a cantilevered beam. Deflection of a cantilevered beam is ΔL.

$$\Delta L = \frac{P l^3}{3EI}$$

Where:

- P = Force Causing the Pipe to Deflect
- l = Length of Pipe that is Deflected, in.
- E = Modulus of Elasticity at System Temperature, psi
- I = Moment of Inertia
- e = Coefficient of Thermal Expansion, in./in. °F
- ΔT = Change of Temperature, °F
- ΔL = Change in Length = 12e(ΔT), in.
- L = Length of Straight Pipe Run, ft.

Maximum stress equation:

$$S = \frac{Mc}{I}$$

Where:

- S = Working Stress at the System Temperature, psi
- M = Bending Moment, lb. ft. = Pl
- c = Pipe O.D./2, in.
- I = Moment of Inertia

By substituting in maximum stress equation:

$$S = \frac{P l D}{2I}$$

Rearranging:

$$P = \frac{2SI}{lD}$$

Rearranging deflection equation:

$$P = \frac{3EI(\Delta L)}{l^3}$$

Equating both equations:

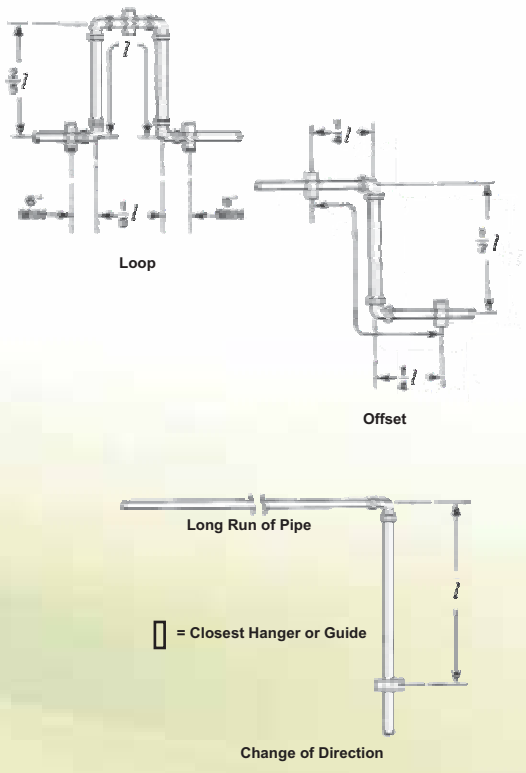
$$\frac{2SI}{lD} = \frac{3EI(\Delta L)}{l^3}$$

Solving for loop length l:

$$l = \left(\frac{3ED(\Delta L)}{2S}\right)^{1/2}$$

FIGURE 4

Expansion Loop and Offset Configurations for Thermoplastics.



3. Design Aspects

3.2 Flow & Friction

The smooth bores of uPVC pipes have better flow Characteristics than those of metal pipes. The following is the co-efficient of friction given when using the Hazen-Villiams formula:-

$$f = 0.2083 \left(\frac{100}{C} \right)^{1.85} \frac{Q^{1.85}}{di^{4.87}}$$

Q = Flow in gallons/min
di = inside dia of pipe in inches
C = constant for inside roughness of pipe
f = friction head in feet of water / 100 feet of pipe

up to 315mm C = 137- 150
over 315mm C = 151

Head losses attributable to fittings can be found by applying:

$$h = \frac{Kv^2}{2g}$$

Value of K
Elbow 90° - 1.00
Elbow 45° - 0.40
Moulded Bends 90° - 0.75
Formed Bends 90° - 0.40
Formed Bends 45° - 0.20
Formed Bends 22 1/2° - 0.10
Tees 90°
Flow in Line - 0.35
Flow in line to branch or branch to line - 1.20

h = Head loss (m)
K = Constant
V = Velocity of fluid (m/s)
g = Acceleration due to gravity (m/s^2)

Surge Pressure.
Surge Pressures commonly termed as “Water Hammer” are generated in any piping system when a flowing liquid changes its velocity.

$$P = \frac{4660\ V}{2.31g \sqrt{\frac{1 + K\ (DR - 2)}{E}}}$$

P = Surge pressure in PSI
V = Maximum Velocity change in Ft/Sec.
g = Acceleration due to gravity 32.2 Ft/Sec 2
K = Fluid bulk modulus, 3×10^5 PSI for water
DR = Pipe outside diameter/wall thickness
E = Modulus of elasticity of the pipe in PSI

3. Design Aspects

3.3 uPVC at Elevated Temperatures

When uPVC pressure pipe operates at temperature other than the emperature at which the pipe is rated 20°C or 23°C, the pressure rating should be established on thermal design factors. Examples given below for guidance only..

Fig 1

PRESSURE TEMP. RELATIONSHIP

Ambient Variable

Internal Temp 20°C

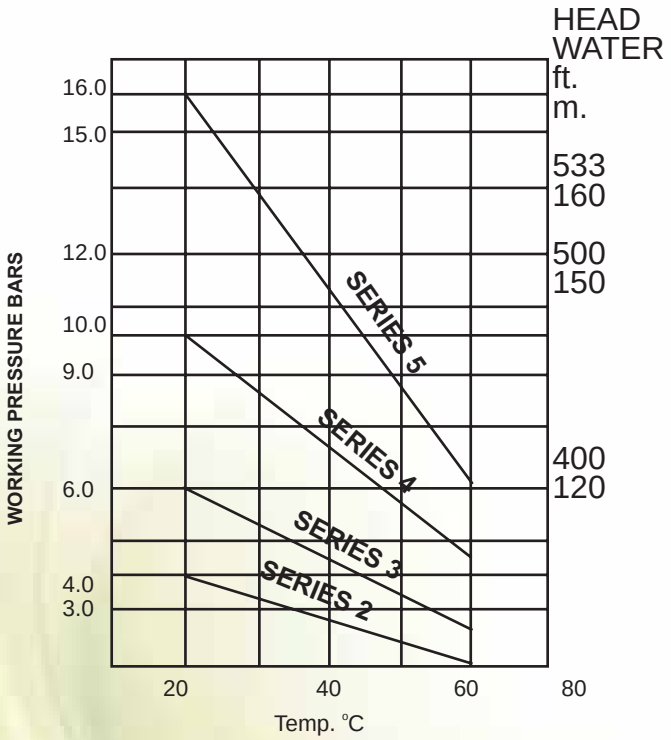


Fig 1

ENT TEMPERATURE OF 40°C a

Required working pressure of 6.0 bars

use a 10 bar rated pipe.

Fig 2

PRESSURE TEMP. RELATIONSHIP

Ambient Temp 20°C

Internal Variable

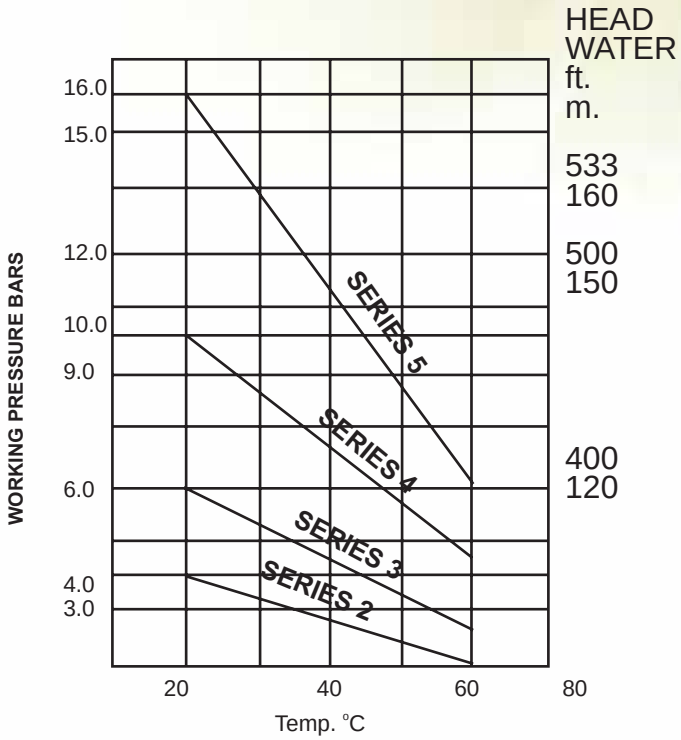


Fig 1

Required working pressure of 7.0 bars

with a liquid temperature of 40°C

use a 10 bar rated pipe.

TEMPERATURE CONVERSION

°F = 9/5°C + 32

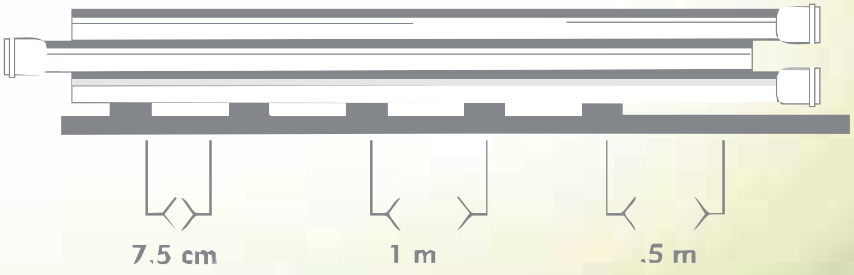
°C = 5/9°F - 32

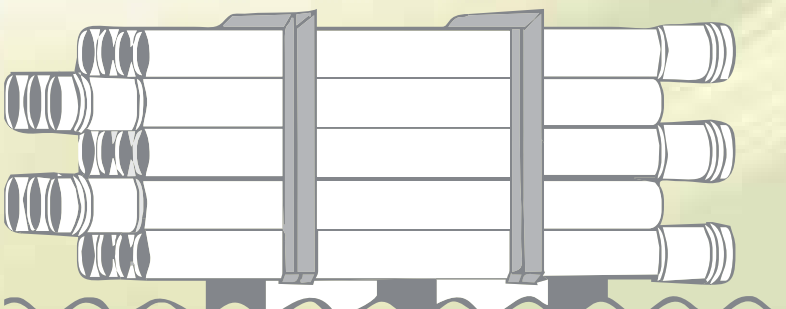
Installation & design guidelines

STACKING:

Pipes should be given adequate support at all times. The should not be stacked in large piles, especially under warm temperature conditions. As the bottom pipes may destroy, thus giving rise to difficulty in pipe alignment and jointing. Socketed and spigoted pipes should be stacked in layers with sockets placed at alternate ends of the stack and with the sockets protruding so as to avoid lopsided stacks ad the imparting of a permanent set to the pipes.

For long-term storage, pipe racks should preferably provide continuous support but, if this is not possible, timber supports of at least 75mm (3 in.) Bearing width, at spacing not greater than 1m (3.2 ft.) Centress should be placed beneath the pipes and, if the stacks are rectangular, at twice this spacing at the different classes of pipe are kept in the same racks then the thickest classes must always be at the bottom.





4. Conversion Factors

1 inch (in)	=	2.54 x 10^{-2} Meters (M)
1 Pound (ib)	=	4.536 x 10^{-1} Kilogram (kg)
1 Newton (N)	=	1.0197 x 10^{-1} Kilopound
1 Pound force (ibf)	=	4.448 Newton (N)
1 Bar (bar)	=	10^{5} Pascal (pa)
1 Bar (bar)	=	10^{5} Newton/Meter2 (N/m2)
1 Bar (bar)	= 1.0^{2} Kilopound/Centimetre2 (kp/cm2)	
1 Bar (bar)	=	14.5 Pounds/Square Inch (psi)
1 Kg force/Centimeter 2 (kgf/cm2)	=	9.806650 x 10^{4} Pascal (Pa)
1 Pound force/Inch2 (ibf/in2)	=	6.894757 x 10^{3} Pascal (Pa)
1 Physical Atmosphere (atm)	=	1.01325 Bar (bar)
1 Inch of water (60F)	=	2.4884 x 10^{2} Pascal (Pa)
1 Inch of mercury (60F)	=	3.377 x 10^{3} Pascal (Pa)
1 American gallon	=	3.785 Liters
1 British gallon	=	4.546 Liters
1 Joule (J)	=	1.01972 x 10^{-1} Kilogram
1 Joule (J)	=	2.388 x 10^{-4} Kilo Calorie (kcal)
1 Foot-Pound force (ft-ibf)	=	1.3558 Joules (J)

Letter of Compliance

Letter of Compliance

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Letter of Compliance

Letter of Compliance

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CERTIFICATE TÜV NORD

Certificate of Compliance

This is to certify that **Manufacturing & T esting Requirement of HDPE, PP , PPR, PPRC Pipes, HDPE, PP , PPR, PPRC, W elded & Cast Molded Fittings** as defined in respective DIN, ASTM, ISO, PrEN, & ANSI Standards were verified upon the request of High Standard Pipe for the product of:

Manufacturer of HDPE, PP , PPR, PPRC Pipes and HDPE, PP, PPR, PPRC Welded & Cast Molded Fittings

Manufactured by:

HIGH STANDARD PIPE

at:

Kabul, Afghanistan.

Complies with the requirements applicable to it as per DIN 8074, 8061/62, 8077, 8078, EN ISO 4427, 4437, 12176-1, 15874-2,3, 15875-2, PrEN 12201-2, ASTM-D1248, D3350-10a, D2447, F714, F477, F480, F679 and ANSI-UL 651-A,B

Valid up to April 30, 2012

CERTIFICATE TÜV NORD

Certificate of Compliance

This is to certify that **Manufacturing & T esting Requirement of PVC, u-PVC Pipes & Cast Molded Fi** as defined in respective ASTM, ISO, PrEN, NEMA, BSS, AWW A, ISIRI & ANSI Standards were verified upon the request of High Standard Pipe for the product of:

Manufacturer of PVC Pipes & PVC Cast Molded Fittings

Manufactured by:

HIGH ST ANDARD PIPE

at:

Kabul, Afghanistan.

Complies with the requirements applicable to it as per ASTM-D 1783, D 1784, D1785-94, D2665, D2241, D2466, F 439, F437, F1970, PrEN 1452-1,2,3,4,5 ANSI-UL 651-A, B16.5, NEMA-Tc 2,4,8, AWWA-C901, BSS 3505, 3506, 5255, 4514, 4660, 5481, 4504, 4346, DIN 8061, 8062, 19534, 19531, 8079, 8080, 8063, ISIRI 9117, 9118 and 9119

Valid up to April 30, 2012

QUALITY IS OUR PROFESSION

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