THERM INDUSTRY CO.
شـــركـــة أي تـــوب ثـــيـــرم

UPVC

Technical Manual

THERM INDUSTRY CO.
شركة اي توب ثيرم

ABOUT US

Welcome to I Top Therm, the leading manufacturer of high-quality piping systems that meet the highest global standards. Since our establishment, we have been committed to providing innovative and reliable piping solutions to meet the needs of various residential, industrial, and infrastructure projects.

We specialize in producing:

PPR water pipes, made of polypropylene, known for their high resistance to heat and pressure, making them ideal for hot and cold water systems.

PVC drainage pipes, offering exceptional performance due to their durability and ease of installation, making them the perfect choice for drainage and sewage systems.

High-density HDPE pipes, used in fire-fighting, irrigation, and drainage systems, known for their high strength, corrosion resistance, and chemical resistance.

At I Top Therm, we place quality and innovation at the core of our work, utilizing the latest technologies and premium raw materials to ensure our products meet the highest safety and efficiency standards. We are your partners in construction and development, always striving to be the first choice for our customers across local and international markets.

Explore this catalog to discover our outstanding range of products, designed to deliver optimal performance and reliability.

من نحن

نرحب بكم في I Top Therm ، المصنع الرائد في تصنيع أنظمة المواسير عالية الجودة وفق أعلى المعايير العالمية. منذ تأسيسنا، التزمنا بتقديم حلول مبتكرة وموثوقة في قطاع الأنابيب، لتلبية احتياجات مختلف المشاريع السكنية والصناعية والبنية التحتية. نحن متخصصون في إنتاج: • مواسير المياه PPR المصنوعة من مادة البولي بروبلين، والتي تتميز بمقاومتها العالية للحرارة والضغط، مما يجعلها مثالية لأنظمة المياه الساخنة والباردة.

• مواسير الصرف الصحي PVC التي توفر أداءً فائقًا بفضل متانتها وسهولة تركيبها، مما يجعلها خيارًا مثاليًا لأنظمة الصرف والتصريف.

• مواسير HDPE عالية الكثافة، المستخدمة في أنظمة مكافحة الحريق والري والصرف، والتي تتميز بقوة تحملها العالية ومقاومتها للتآكل والمواد الكيميائية. في I Top Therm، نضع الجودة والابتكار في صميم عملنا، ونعتمد على أحدث التقنيات والمواد الخام الممتازة لضمان تقديم منتجات تلبي أعلى معايير السلامة والكفاءة. نحن شركاؤكم في البناء والتطوير، ونسعى دائمًا لأن نكون الخيار الأول لعملائنا في جميع أنحاء الأسواق المحلية والدولية. اكتشفوا في هذا الكتالوج مجموعة منتجاتنا المتميزة، التي تم تصميمها لتوفر الأداء الأمثل والموثوقية

THERM INDUSTRY CO.
شـركـة اي تـوب ثـيـرم

Our Expertise

We specialize in the production of :

- PPR Water Pipes – Made from premium polypropylene, offering exceptional resistance to heat and pressure, making them ideal for hot and cold water systems.
- PVC Drainage Pipes – Engineered for durability and easy installation, providing outstanding performance for drainage and sewage applications.
- HDPE Pipes – High-density polyethylene pipes used in fire-fighting, irrigation, and drainage systems, known for their strength, corrosion resistance, and chemical durability.

خبراتنا

نحن متخصصون في إنتاج:

- مواسير المياه PPR – مصنوعة من مادة البولي بروبلين الممتازة، وتتميز بمقاومة عالية للحرارة والضغط، مما يجعلها مثالية لأنظمة المياه الساخنة والباردة.
-
- مواسير الصرف الصحي PVC – مصممة للمتانة وسهولة التركيب، مما يوفر أداءً متميزًا لأنظمة الصرف والتصريف.
-
- مواسير HDPE – أنابيب البولي إيثيلين عالي الكثافة، المستخدمة في أنظمة مكافحة الحريق والري والصرف، وتتميز بالقوة العالية ومقاومة التآكل والمواد الكيميائية.

THERM INDUSTRY CO.
شركة اي توب ثيرم

Our Vision

To be the global first choice in high-quality pipe and fitting solutions, committed to innovation, quality, and sustainability.

Our Mission

To deliver innovative and safe products that meet the highest international standards, with a focus on fulfilling our customers' needs and promoting sustainability through the use of cutting-edge
technologies and our exceptional workforce

رؤيتنا

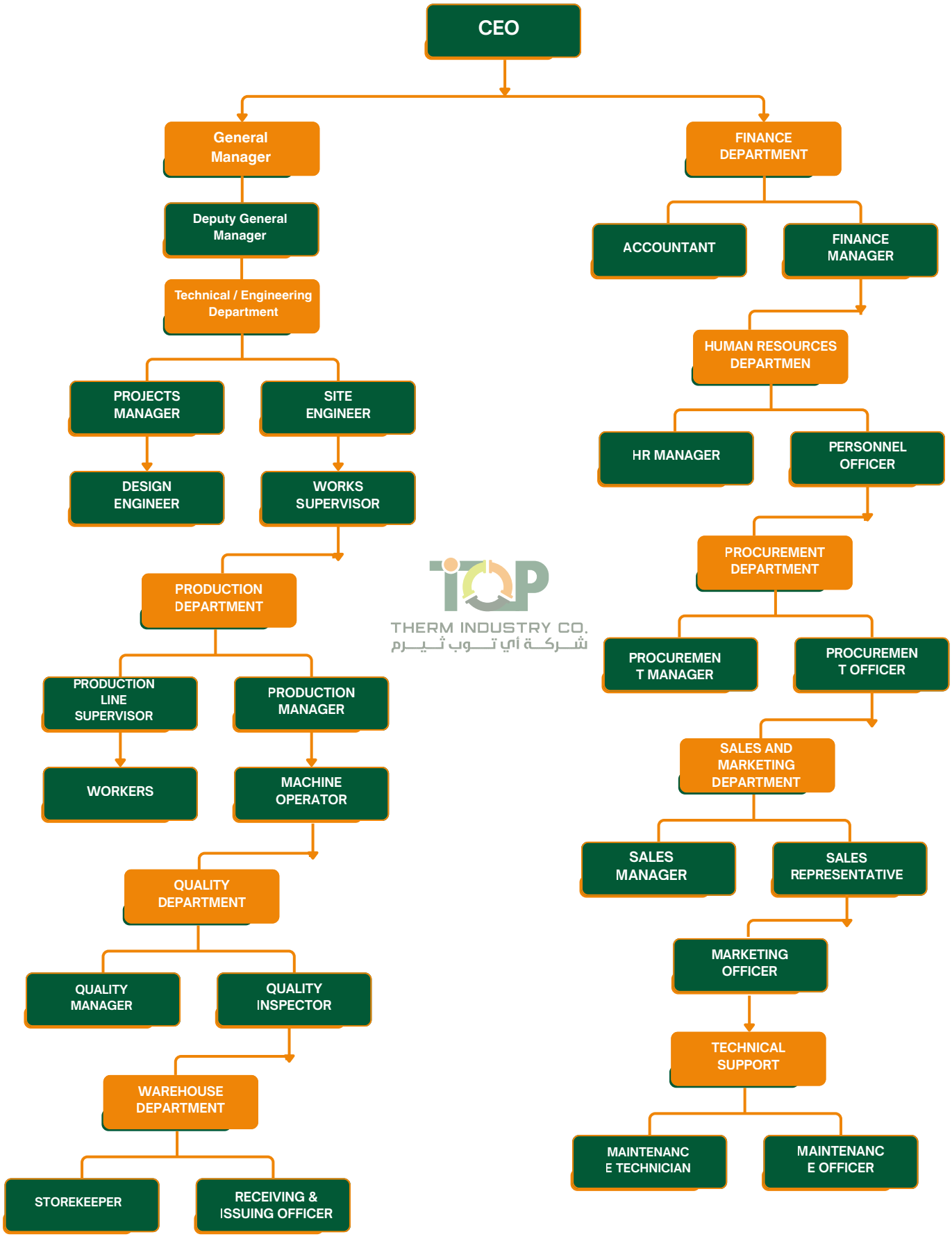
أن نكون الخيار الأول عالميًا في حلول الأنابيب والوصلات عالية الجودة، ملتزمين بالابتكار، والجودة، والاستدامة.

مهمتنا

تقديم منتجات مبتكرة وآمنة تلبي أعلى المعايير الدولية، مع التركيز على تلبية احتياجات عملائنا وتعزيز الاستدامة من خلال استخدام أحدث التقنيات والاعتماد على كادرنا الاستثنائي.

THERM INDUSTRY CO.
شـركـة أي تـوب ثـيـرم

COMPANY ORGANIZATIONAL CHART



THERM INDUSTRY CO.
شركة اي توب ثيرم

Introduction

I TOP featuring high-quality UPVC pipes and fittings designed for durability, efficiency, and superior performance. Our factory manufactures a wide range of UPVC products suitable for plumbing, irrigation, drainage, and industrial applications

With advanced manufacturing technology, strict quality control, and corrosion-resistant materials, our UPVC pipes ensure long-lasting reliability and smooth fluid transport. Whether for residential, commercial, or agricultural use, our products meet international standards for strength, safety, and sustainability.
Explore our manual to discover the perfect UPVC solutions for your needs. Quality, innovation, and customer satisfaction* are at the heart of what we do.
Your trusted partner in piping solutions!

UPVC THE PREFERRED CHOICE

PROPERTY	I TOP UPVC	COPPER	GI
Corrosion	High chemical resistance makes it corrosion-free	Over a period of time	Rapid corrosion and deterioration
Scaling, pitting and leaching, full bore flow	Full bore flow, thanks to the absence of scaling, pitting and leaching	Reduced bore flow because of scaling, pitting and leaching	Reduced bore flow because of severe scaling, pitting and leaching
Thermal conductivity	Require reduced insulation as lower thermal conductivity reduces heat loss	Very high - increases heat loss and requires high insulation	Very high thermal conductivity - increases heat loss and requires high insulation
Bacterial growth	Extremely low	Higher than UPVC	Higher than copper
Fire resistance	High LOI of 60 makes it fire-retardant unless exposed to an external fire source continuously	Better fire resistance, copper being a metal	Being metallic, offers better fire resistance
Installation	Quick, easy and cost-effective - through cold welding. No electricity or heat source required.	Highly skilled manpower required to install. Also needs electricity/ heat source	Complicated and very slow. Requires more man hours.
Leakage	Long life leak-free piping systems	If carried out by highly trained manpower, gives a leak-free performance	Highly susceptible to leakage from the time of installation
Thermal expansion	More thermal expansion than metal yet the stress induced is relatively lower	Thermal expansion is lower yet the stress induced is greater	Lower thermal expansion but the stress induced is greater
Range of fittings	Preferred choice of architects, consultants, builders and end users as the wide range ensures that layout is compact as well as easy	Involves frequent cutting or welding to achieve the desired layout as the range of fittings is very limited	Limited range of fittings

THERM INDUSTRY CO.
شركة آي توب ثيرم

- ## Product range preview and System characteristics

PIPES from I TOP are manufactured according to SASO and or DIN Standards from 16mm up to 500mm outside diameter in various pressure classes
SASO UPVC pipes are available with spigot and solvent weld socket joints for Diameters less than 63mm. Sizes of outside diameter 63mm And larger are available with both mechanical rubber ring joints or solvent weld socket Ijoints
Pipes manufactured in accordance with ASTM & BS Standards are ranging from 1/2 inch up to 8 inches in various pressure ratings
ASTM PVC Pipes are available with plain spigot and socket joints only.
I TOP pipes are produced in 6 meters standard length (other lengths are available on request), standard colours are grey, white and black (other colours are available on request).

- ## Technical Specifications

Mechanical and Thermal properties

Properties	Unit (Si)	Values
Physical properties		
Specific Gravity	gm / cm3	1.42
Water Absorption	mg/cm2	< 4
Cell Designation	ASTM 1784	12454
Flame Spread E-84		< 25
Poison's Ratio @ 73°F		0.35 - 0.38
Friction Coefficient	Factor "C"	150
Mechanical properties		
Tensile Strength Ultimate	kgf/cm2	492.5 min
	MPA	48.3 min
Modulus of Elasticity in Tension	kgf/cm2	28123 min
	MPA	2758 min
Compressive Strength	kgf/cm2	632.2 min
	MPA	62.0 min
Flexural Strength	kgf/cm2	1020
	MPA	100.0 min
Izod Impact Strength	j/m of notch	34.7 min
Hardness	Durometer "D"	>70±3
	Rockwell "R"	110-120
Thermal properties		
Coefficient of Thermal Linear Expression		5.6
Thermal Conductivity	Wm/ °k /m2	0.18
Specific Heat	cal / °C	0.23
	kcal /kg °C	0.23
Vicat Softening Temperature	°C	> 80
Deflection Temperature	°C	> 70 min
Elongation at Break	%	> 40 min
Electrical properties		
Dielectric Strength	Volts / Mil	1100
Dielectric Constant	60 cps @ 30°C	4
Specific Volume Restivity	Ohm / cm	> 1014
Power Factor	at 10 cycles	3

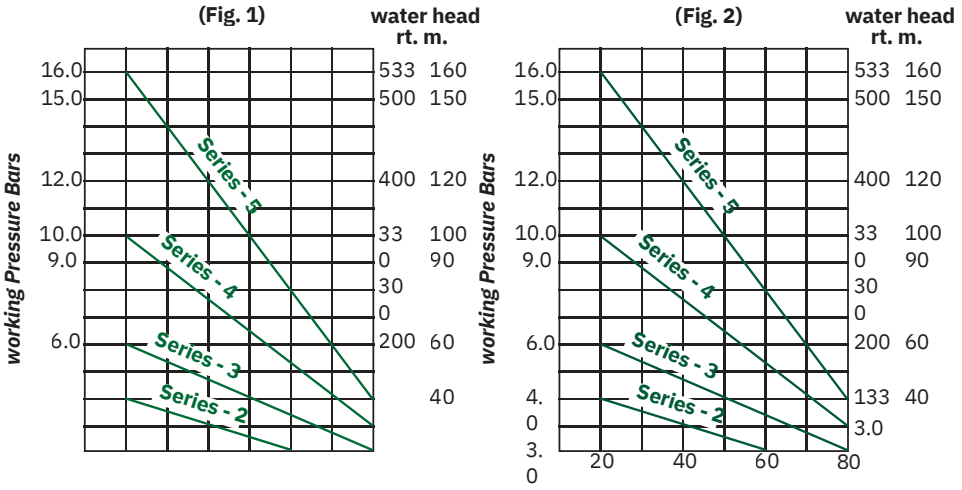
THERM INDUSTRY CO.
شركة آي توب ثيرم

• Chemical Resistance of I TOP UPVC Pipes

I TOP UPVC & CPVC pipes and fittings have excellent chemical resistance to most mineral acids, bases, salts and aliphatic hydrocarbons.
When they used within their allowable pressure and temperature ranges, they will provide a good alternative to metallic piping which corrodes when exposed to the same aggressive chemical solutions. The information contained in the following chemical resistance tables are based on data supplied to us by our raw material manufacturers and some actual field experience gathered from various sources. You must take into consideration the specific use conditions that will apply to your project. There will be variables that will affect the chemical resistance such as temperature, pressure, chemical concentration and external stresses that may exist in the design and construction of the system. Because of the wide variety and numerous use conditions that are found in the process of chemical industry, the final decision is to use thermoplastic piping should be based on in-service testing and evaluation by the responsible engineer and end-user.

• I TOP UPVC Pipe at Elevated Temperature

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

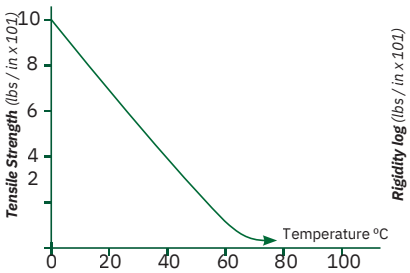


Where the liquid carried in a pipeline is 20°C and the ambient temperature is higher than 20°C - the maximum working pressure should be reduced by 1 1/2 % per degree above 20°C.
Where liquid carried in a pipeline is 20°C and the ambient temperature is 20°C - the maximum working pressure should be reduced by 2% for every degree °C the fluid temperature is above 20°C. The aforementioned pressure reductions apply to maximum operating temperature of 60°C.

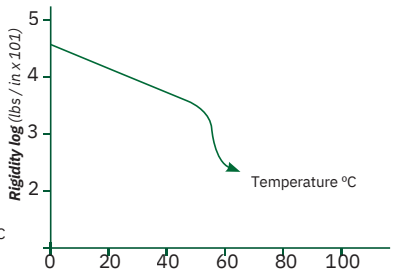
Temperature Conversion
F = 9/5(C+32) C = (F-32)5/9

Pressure Temperature Relationship

Temperature		Temperatur Correction Factors
°C	°F	
21	70	1.00
27	80	0.90
32	90	0.75
38	100	0.62
43	110	0.50
46	115	0.45
49	120	0.40
52	125	0.35
60	140	0.22



Relationship between Tensile Strength & Temperature



Relationship between Rigidity & Temperature

THERM INDUSTRY CO.
شـركـة آي تـوب ثـيـرم

• Expansion in I TOP UPVC pipe

"The PVC piping systems expand and contract with changes in temperature, both from ambient temperature and from the temperature of the fluid passing through the pipework.
The following sections explain the techniques of estimating and treating the expansion in PVC pipes."

• Calculation of Expansion

The co-efficient of linear expansion of PVC pipes is relatively small compared to other plastic materials. However, the effects of thermal expansion in the system should be compensated wherever necessary.

The thermal expansion in PVC straight sections can be calculated using the below formula:

$$\Delta L = \alpha \times L \times \Delta T$$

Where:

ΔL = expansion (mm)
α = co-efficient of linear expansion (mm/m/°C) = 0.08
L = length of the pipe (m)
ΔT = temperature difference (°C)

• Linear velocity in I TOP PVC pipe

The linear velocity of fluid flow in I TOP PVC is calculated from following equation:

$$V = \frac{0.4085 * g}{d^2} \text{----------(Eq. 3)}$$

WHERE:

V = Linear fluid flow velocity in feet per second
g = Flow rate in gallons per minute
d = Inside diameter of pipe in inches

Linear fluid flow velocity in any PVC piping system should generally be limmited to 5.0 feet/second. This will minimize the risk hydraulic shock failure which is concern of water hammer surge pressure.

THERM INDUSTRY CO.
شـركـة آي تـوب ثـيـرم

• FRICTION LOSS IN PIPE

The Hazen-william equation is generally used for calculating frictional head loss in any piping system. The "C" value which is surface roughness constant for I TOP PVC pipes is 150. As PVC pipes are resistant to scaling & fouling means that friction pressure losses in the flow of fluid are very negligible against the metal pipes subject to scaling.

$$f = 0.2083 * \left(\frac{100}{C}\right)^{1.852} * \frac{g^{1.852}}{d^{4.8655}} \quad \text{----------(Eq. 4)}$$

WHERE:

f = frictional head loss in feet for water per 100 feet length of PVC pipe

d = inside diameter of pipe in inches

g = flow rate in gpm (gallons per minute)

C = surface roughness constant for pipe

• Surface roughness constant "C" for different piping materials

"C" Surface roughness constant	Pipe type
150	PVC pipe
130-140	New steel, CI & Copper pipes
120	Old steel, CI & Copper pipes
110	GI (galvanized) pipes
60 - 80	Worn/pitted CI pipes

• FRICTION LOSS IN FITTINGS

Frictional losses through various types of injection moulded PVC fittings are calculated from the equivalent length of straight pipe. The equivalent lengths of pipe for various common PVC fittings for frictional loss are given in below table.

Nominal Size (inch)	90° Elbow	45° Elbow	Tee straight run flow	Tee branch flow
1/2	1.55	0.83	1.04	3.11
3/4	2.06	1.10	1.37	4.12
1	2.62	1.40	1.75	5.25
1 1/4	3.45	1.84	2.30	6.90
1 1/2	4.03	2.15	2.68	8.05
2	5.17	2.76	3.45	10.3
2 1/2	6.10	3.30	4.10	12.20
3	7.60	4.10	5.10	15.20
4	10.00	5.30	6.70	20.00
6	15.10	8.00	10.10	30.20

THERM INDUSTRY CO.
شركة اي توب ثيرم

· Applicable Standards

I TOP High Pressure UPVC pipes and fittings are manufactured in accordance with the following standards:

DIN 8062
Unplasticized polyvinyl chloride (PVC-U) pipes; dimensions.

DIN 8061
Unplasticized polyvinyl chloride pipes – General quality requirements and testing.

BSEN 1452
Plastic piping system for potable water (PVC-U).

ASTM D 1785
Standard Specification for Poly Vinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120.

ASTM D 2241 96A
Poly vinyl Chloride (PVC) Pressure Rated Pipes, (SDR Series).

ASTM D 2467
Standard Specification for Poly Vinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 80.

BS 3505
Specification for unplasticized poly vinyl chloride (PVC-U) pressure pipes for cold potable water.

BS 3506
Specification for unplasticized PVC pipe for industrial uses.

BS 4346
Joints and fittings for use with unplasticized PVC pressure pipes. Specification for solvent cement.

ASTM D 2464
Standard Specification for Threaded Poly Vinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 80.

DIN 8063
Pipe Joints and Pipe Fittings for Pipes under Pressure made of Unplasticized Polyvinyl Chloride (Rigid PVC).

ASTM D 2466
Standard Specification for Poly Vinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 40.

ISO 4422-2
UPVC Pipes and fittings for water supply Superseded by ISO 1452-2 / BSEN ISO 1452.

ASTM D 2241-09
Standard Specification for Polyvinyl Chloride (PVC) Pressure-Rated Pipe (SDR Series).

BSEN 1401-1
Plastic Piping Systems for Non-pressure Underground Drainage and Sewerage. Unplasticized Poly vinyl Chloride (PVC-U). Specifications for Pipes, Fittings and the System.

BS 5481
Specification for Unplasticized PVC Pipe and Fitting for Gravity Sewers.

THERM INDUSTRY CO.
شركة اي توب ثيرم

- **UPVC pipes according to (SASO 14, DIN 8062, DIN 19532, ISO 161)**

Class		Class 1		Class 2		Class 3		Class 4		Class 5	
Nominal Pressure in Bars		2 BAR		4 BAR		6 BAR		10 BAR		16 BAR	
Nom-OD mm	Tolerance on Nom-OD mm	Nom-thick of wall mm	Nom-wt. kg/m	Nom thick of wall mm	Nom-wt. kg/m	Nom-thick of wall mm	Nom-wt. kg/m	Nom-thick wall mm	Nom-wt. kg/m	Nom-thick of wall mm	Nom-wt. kg/m
20	+0.2									1.5	0.137
25	+0.2							1.5	0.174	1.9	0.212
32	+0.2							1.8	0.264	2.4	0.342
40	+0.2					1.8	0.334	1.9	0.350	3.0	0.525
50	+0.2					1.8	0.422	2.4	0.552	3.7	0.809
63	+0.2					1.9	0.562	3.0	0.854	4.7	1.29
75	+0.3			1.8	0.642	2.2	0.782	3.6	1.22	5.6	1.82
90	+0.3			1.8	0.774	2.7	1.13	4.3	1.75	6.7	2.61
110	+0.3	1.8	0.950	2.2	1.16	3.2	1.64	5.3	2.61	8.2	3.90
125	+0.3	1.8	1.08	2.5	1.48	3.7	2.13	6.0	3.64	9.3	5.01
140	+0.4	1.8	1.21	2.8	1.84	4.1	2.65	6.7	4.18	10.4	6.27
160	+0.4	1.8	1.39	3.2	2.41	4.7	3.44	7.7	5.47	11.9	8.17
180	+0.4	1.8	1.57	3.6	3.02	5.3	4.37	8.6	6.88	13.4	10.4
200	+0.4	1.8	1.74	4.0	3.70	5.9	5.37	9.6	8.51	14.9	12.8
225	+0.5	1.8	1.96	4.5	4.70	6.6	6.76	10.8	10.8	16.7	16.1
250	+0.5	2.0	2.40	4.9	5.65	7.3	8.31	11.9	13.2	18.6	19.9

Length : 6 meters (Other lengths are available on request.)
Colour : Grey.
Socket Type : Rubber joint (R/J) type supplied from sizes 63mm up to 500mm.
Solvent Cement (SC/J) type supplied from sizes 20mm up to 500mm.

THERM INDUSTRY CO.
شركة أي توب ثيرم

• UPVC Pipes According to ASTM D - 1785, Schedule 40 & Schedule 80

Nominal Size Inch.	O.D. (mm)		Schedule 40				Schedule 80			
	min	max	Wall Thickness (mm)		Nominal Weight (kg/m)	PSI	Wall Thickness (mm)		Nominal Weight (kg/m)	PSI
			min	max			min	max		
1/2	21.24	21.44	2.77	3.28	0.24	600	3.73	4.24	0.3	850
3/4	26.57	26.77	2.87	3.38	0.33	480	3.91	4.42	0.43	690
1	33.27	33.53	3.38	3.89	0.48	450	4.55	5.08	0.61	630
1 1/4	42.03	42.29	3.56	4.07	0.65	370	4.85	5.44	0.87	520
1 1/2	48.11	48.41	3.68	4.19	0.77	330	5.08	5.69	1.03	470
2	60.17	60.47	3.91	4.42	1.04	280	5.54	6.2	1.43	400
2 1/2	72.84	73.2	5.16	5.77	1.57	300	7.01	7.85	2.2	420
3	88.7	89.1	5.49	6.15	2.14	260	7.62	8.53	2.91	370
4	114.1	114.5	6.02	6.73	3.05	220	8.56	9.58	4.26	320
5	141.05	141.55	6.22	7.347	4.18	190	9.52	10.67	6.42	290
6	168	168.56	7.11	7.98	5.37	180	10.97	12.29	8.13	280
8	218.7	219.46	8.18	9.17	8.11	160	12.7	14.22	12.4	250

Length :6 meters (Other lengths are available on request.)
Colour :Schedule 40- White, Schedule 80 - Grey
Socket Type :Plain, solvent cement (SC/J)

• UPVC Pressure-rated Pipes According to ASTM D 2241

Nominal Size Inch.	O.D. (mm)		Wall Thickness (mm)											
			Standard Diameter Ratio (SDR)											
	min	max	41 W.P: 6.9 Bar		32.5 W.P: 8.6 Bar		26 W.P: 11 Bar		21 W.P: 13.8 Bar		17 W.P: 17.2 Bar		13.5 W.P: 21.7 Bar	
			min	max	min	max	min	max	min	max	min	max	min	max
1/2	21.24	21.44											1.57	2.08
3/4	26.57	26.77							1.52	2.03	1.57	2.08	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 1/2	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	3.30	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		

Note: The maximum pressure rating given above is based on water at 73 °F/23 °C and for unthreaded pipes.

Length :6 meters (Other lengths are available on request.)
Colour : White
Socket Type : Plain, solvent cement (SC/J).

THERM INDUSTRY CO.
شركة اي توب ثيرم

• UPVC Pipes According to BS 3505 / 3506

Applications: Water supply, irrigation systems, industrial use.

Nominal Size Inch.	O.D. (mm)		Wall Thickness (mm)													
	min	max	Class B		Class C		Class D		Class E		Class O		Class 6		Class 7	
			min	max	min	max	min	max	min	max	min	max	min	max	min	max
3/8	17.0	17.3							1.5	1.9			2.3	2.8	3.2	3.8
1/2	21.2	21.5							1.7	2.1			2.8	3.3	3.7	4.3
3/4	26.6	26.9							1.9	2.5			2.9	3.4	3.9	4.5
1	33.4	33.7							2.2	2.7			3.4	4.0	4.5	5.2
1 1/4	42.1	42.4					2.2	2.7	2.7	3.2			3.6	4.2	4.8	5.5
1 1/2	48.1	48.4					2.5	3.0	3.1	3.7	1.8	2.2	3.7	4.3	5.1	5.9
2	60.2	60.5			2.5	3.0	3.1	3.7	3.9	4.5	1.8	2.2			5.5	6.3
2 1/2	75.0	75.3			3.0	3.5	3.9	4.5	4.8	5.5	1.8	2.2				
3	88.7	89.1	2.9	3.4	3.5	4.1	4.6	5.3	5.7	6.6	1.8	2.2				
4	114.1	114.5	3.4	4.0	4.5	5.2	6.0	6.9	7.3	8.4	2.3	2.8				
5	140.0	140.4	3.8	4.4	5.5	6.4	7.3	8.4	9.0	10.4	2.6	3.1				
6	168.0	168.5	4.5	5.2	6.6	7.6	8.8	10.2	10.8	12.5	3.1	3.7				
8	218.8	219.4	5.3	6.1	7.8	9.0	10.3	11.9	12.6	14.5	3.1	3.7				

Length :6 meters (Other lengths are available on request.)
Colour :Dark Grey except class 0 which is grey.
Socket Type : Plain, solvent cement (SC/J)

Pressure ratings for working pressure at 20 oC
Class B C D E

6.0 bar
9.0 bar
12.0 bar
15.0 bar

For higher working temperatures, the pressure rating should be reduced.

THERM INDUSTRY CO.
شـركـة أي تـوب ثـيـرم

• UPVC Pressure Pipes according to EN 1452

Dimensions in milllimeters

Nominal Outside diameter	Nominal (minimum) Wall Thickness							
	Pipe Series S							
	S 20 (SDR 41)	(S 16,7) (SDR 34,4)	S 16 (SDR 33)	S 12,5 (SDR 26)	S 10 (SDR 21)	S 8 (SDR 17)	S 6,3 (SDR 13,6)	S 5 (SDR 11)
	Nominal pressure PN based on service (design) coeffi cient C=2,5							
		PN 6	PN 6	PN 8	PN 10	PN 12,5	PN 16	PN 20
20		-	-	-	-	-	1,5	1,9
25		-	-	-	-	1,5	1,9	2,3
32		-	-	1,5	1,6	1,9	2,4	2,9
40		-	1,5	1,6	1,9	2,4	3,0	3,7
50		1,5	1,6	2,0	2,4	3,0	3,7	4,6
63		1,9	2,0	2,5	3,0	3,8	4,7	5,8
75		2,2	2,3	2,9	3,6	4,5	5,6	6,8
90		2,7	2,8	3,5	4,3	5,4	6,7	8,2
Nominal pressure PN based on service (design) coeffi cient C=2,0								
	PN 6	PN 7,5	PN 8	PN 10	PN 12,5	PN 16	PN 20	PN 25
110	2,7	3,2	3,4	4,2	5,3	6,6	8,1	10,0
125	3,1	3,7	3,9	4,8	6,0	7,4	9,2	11,4
140	3,5	4,1	4,3	5,4	6,7	8,3	10,3	12,7
160	4,0	4,7	4,9	6,2	7,7	9,5	11,8	14,6
180	4,4	5,3	5,5	6,9	8,6	10,7	13,3	16,4
200	4,9	5,9	6,2	7,7	9,6	11,9	14,7	18,2
225	5,5	6,6	6,9	8,6	10,8	13,4	16,6	
250	6,2	7,3	7,7	9,6	11,9	14,8	18,4	

Note: To apply an overall service (design) coeffi cient of 2.5 (insted of 2.0) for pipes with nominal diameter above 90mm, the next higher pressure rating, PN, shall be chosen.

Length : 6 meters (Other lengths are available on request).
Colour : Grey.
Socket Type : Rubber joint (R/J) type supplied from sizes 63mm up to 500mm.
Solvent Cement (SC/J) type supplied from sizes 20mm up to 500mm.

THERM INDUSTRY CO.
شركة اي توب ثيرم

- **UPVC pipe according to DIN 8062, ISO 161-1**

Class		Class 1		Class 2		Class 3		Class 4	
Nominal Pressure in Bars		2 BAR		4 BAR		6 BAR		10 BAR	
Nom-OD (mm)	Tolerance on Nom-OD (mm	Nom-wall thickness (mm)	Nom- wt. kg/m	Nom-wall thickness (mm)	Nom- wt. kg/m	Nom-wall thickness (mm)	Nom-wt. kg/m	Nom-wall thickness (mm)	Nom-wt. kg/m
25	+.0.2							1.5	0.174
32	+.0.2							1.8	0.264
40	+.0.2					1.8	0.334	1.9	0.350
50	+.0.2					1.8	0.422	2.4	0.552
63	+.0.2					1.9	0.563	3.0	0.854
75	+.0.3			1.8	0.642	2.2	0.782	3.6	1.22
90	+.0.3			1.8	0.774	2.7	1.13	4.3	1.75
110	+.0.3	1.8	0.950	2.2	1.16	3.2	1.64	5.3	2.61
125	+.0.3	1.8	1.08	2.5	1.48	3.7	2.13	6.0	3.64
140	+.0.4	1.8	1.21	2.8	1.84	4.1	2.65	6.7	4.18
160	+.0.4	1.8	1.39	3.2	2.41	4.7	3.44	7.7	5.47
180	+.0.4	1.8	1.57	3.6	3.02	5.3	4.37	8.6	6.88
200	+.0.4	1.8	1.74	4.0	3.70	5.9	5.37	9.6	8.51
225	+.0.5	1.8	1.96	4.5	4.70	6.6	6.76	10.8	10.8
250	+.0.5	2.0	2.40	4.9	5.65	7.3	8.31	11.9	13.2

Length :6 meters (Other lengths are available on request).
Colour : Grey.
Socket Type :Rubber joint (R/J) type supplied from sizes 63mm up to 500mm.
Solvent Cement (SC/J) type supplied from sizes 20mm up to 500mm.

THERM INDUSTRY CO.
شـركـة أي تـوب ثـيـرم

• UPVC Sewer Pipes (Gravity) According to DIN 19534.

Applications : Sewerage Pipe Underground

Nominal Size (mm)	Outside Diameter (mm)		Wall Thickness (mm)		Insertion Depth (mm)	Weight kg/m
	(D)	Tolerance	(S)	Tolerance		
110	110	0.3	3.0	0.5 +	115	1.63
125	125	0.3	3.0	0.5 +	120	1.870
160	160	0.4	3.6	0.6 +	132	2.650
200	200	0.4	4.5	0.7 +	145	4.120
250	250	0.5	6.1	0.9 +	160	7.00

LENGTH : 6 meters (Other lengths are available on
COLOUR : request.) Golden Brown. Solvent cement
SOCKET TYPE : (SC/J) type, Rubber Joint (R/J) type.

• UPVC Drain Pipes According to DIN 19531.

Applications : Waste & Soil discharge systems inside buildings

Nominal Size (mm)	Outside Diameter (mm)		Wall Thickness (mm)		Weight kg/m
	Min	Max	Min	Max	
40	40.0	40.2	1.8	2.2	0.381
50	50.0	50.2	1.8	2.2	0.481
75	75.0	75.3	1.8	2.2	0.642
110	110.0	110.3	2.2	2.7	1.160
125	125.0	125.3	2.5	3.0	1.480
160	160.0	160.4	3.2	3.8	2.410

LENGTH : 6 meters (Other lengths are available on request).
COLOUR : Grey. Solvent cement (SC/J) type, Rubber Joint
SOCKET TYPE : (R/J) type

THERM INDUSTRY CO.
شركة أي توب ثيرم

• UPVC Underground Sewer Pipe (Gravity) According to BS 5481

Applications : Gravity Sewerage Underground

Nominal Size	Outside Diameter (mm)		Wall Thickness (mm)		Weight kg/m
	Min	Max	Min	Max	
200 (8")	200.0	200.6	4.9	5.6	4.50
250 (10")	250.0	250.7	6.1	7.0	7.01

• UPVC Underground Drainage & Sewerage Pipes according to BS 4660

Applications : Drainage Under Gardens, Fields, Driveways & Roads

Nominal Size	Outside Diameter (mm)		Wall Thickness (mm)		Weight kg/m
	Min	Max	Min	Max	
110 (4")	110.0	110.4	3.2	3.8	1.64
160 (6")	160.0	160.6	4.1	4.8	3.04

LENGTH :5.8 & 6 meters (Other lengths are available on request).
COLOUR :Golden Brown.
SOCKET TYPE :Solvent cement (SC/J) type, Rubber Joint (R/J) type

• UPVC Aboveground Soil & Ventilating Pipes according to BS 4514

Applications : Soil & Ventilating Pipes Aboveground

Nominal Size	Outside Diameter (mm)		Wall Thickness (mm)		Weight kg/m
	Min	Max	Min	Max	
82 (3")	82.4	82.8	3.2	3.8	1.21
110 (4")	110.0	110.4	3.2	3.8	1.64
160 (6")	160.0	160.6	3.3	3.9	2.47

LENGTH :5.8 & 6 meters (Other lengths are available on request).
COLOUR :Golden Brown.
SOCKET TYPE :Solvent cement (SC/J) type, Rubber Joint (R/J) type
Non standard lengths & colours available on request.

THERM INDUSTRY CO.
شركة أي توب ثيرم

• UPVC Aboveground Waste Pipes according to BS 5255

Applications : Waste Aboveground

Nominal Size	Outside Diameter mm		Wall Thickness (mm)		Weight kg/m
	Min	Max	Min	Max	
32 (1 1/4")	36.15	36.45	1.8	2.2	0.301
40 (1 1/2")	42.75	43.05	1.9	2.3	0.376
50 (2")	55.75	56.05	2.0	2.4	0.519

Nominal Size	(Outside Diameter (mm)		(Wall Thickness (mm		Weight kg/m
	Min	Max	Min	Max	
("4/1 1) 32	36.15	36.45	1.8	2.2	0.301
("2/1 1) 40	42.75	43.05	2.3	2.8	0.452
("2) 50	55.75	56.05	2.4	2.9	0.620

LENGTH : 4, 5.8 & 6 meters (Other lengths are available on request).
COLOUR : Grey.
SOCKET TYPE :Solvent cement (SC/J) type, Rubber Joint (R/J) type
Non standard lengths & colours available on request.

• UPVC Drain, Waste, Vent Pipes According to ASTM D 2665.

Applications : Drain, Waste, Vent (DWV)

Nominal Size (inch)	Outside Diameter (mm)		Wall Thickness (mm)		Weight kg/m
	Min	Max	Min	Max	
1 1/4	42.03	42.29	3.56	4.07	0.65
1 1/2	48.11	48.41	3.68	4.19	0.77
2	60.18	60.48	3.91	4.42	1.04
3	88.7	89.1	5.49	6.15	2.14
4	114.07	114.53	6.02	6.73	3.05
6	168.0	168.56	7.11	7.97	5.37
8	218.7	219.46	8.18	9.17	8.11

LENGTH :5.8 & 6 meters (Other lengths are available on request).
COLOUR : White.
SOCKET TYPE :Plain, Solvent cement (SC/J)
Non standard lengths & colours available on request.

THERM INDUSTRY CO.
شركة أي توب ثيرم

• UPVC Electrical Conduits according to DIN 8062

Applications: Electrical installations.

Nominal OD (mm)	Class 2		Class 3	
	Wall Thickness (mm)	Weight kg/m	Wall Thickness (mm)	Weight kg/m
40	-	-	1.8	0.334
50	-	-	1.8	0.422
63	-	-	1.9	0.562
75	1.8	0.642	2.2	0.782
90	1.8	0.774	2.7	1.13
110	2.2	1.16	3.2	1.64
125	2.5	1.48	3.7	2.13
140	2.8	1.84	4.1	2.65
160	3.2	2.41	4.7	3.44
200	4.0	3.70	5.9	5.37
225	4.5	4.70	6.6	6.76
250	4.9	5.65	7.3	8.31

Length : 6 meters (Other lengths are available on request).
Colour : Grey.
Socket Type : Solvent cement (SC/J) type.

• UPVC Electrical Conduits according to BS 6099

Applications: Electrical installations.

Nominal Size (mm)	Minimum Inside Diameter (mm)			Maximum Wall Thickness mm			Weight kg/m		
	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy
16	13.7	13.0	12.2	1.9	1.5		0.080	0.100	0.125
20	17.4	16.9	15.8	1.3	1.55	2.1	0.120	0.140	0.180
25	22.1	21.9	20.6	1.45	1.8	2.2	0.165	0.200	0.240
32	28.6	27.8	26.6	1.7	2.1	2.7	0.245	0.296	0.370
40	35.8	35.4	34.4	2.1	2.3	2.8	0.352	0.406	0.485
50	45.1	44.3	43.2	2.45	2.85	3.4	0.540	0.622	0.707
63	57.0	-	-	3.0	-	-	0.830	-	-

Length : 3 meters (Other lengths are available on request).
Colour : Black/White.
Socket Type : Plain, Solvent cement (SC/J) type

THERM INDUSTRY CO.
شركة اي توب ثيرم

• UPVC Electrical Conduits & Tubing according to NEMA TC-2

Applications: EPT Electrical plastic tubing for encasement in concrete, EPC 40 Electrical plastic conduit for direcburial underground, EPC 80 Electrical plastic conduit for heavy duty.

Nominal Size inch	Outside diameter (mm)		Wall Thickness (mm)						Weight kg/m		
			EPT		EPC 40		EPC 80		EPT	EPC 40	EPC 80
	min	max	min	max	min	max	min	max			
1/2	21.24	21.44	1.52	2.03	2.77	3.28	3.73	4.24	0.155	0.24	0.3
3/4	26.57	26.77	1.52	2.03	2.87	3.38	3.91	4.24	0.197	0.33	0.43
1	33.27	33.53	1.52	2.03	3.38	3.89	4.55	5.08	0.25	0.48	0.61
1 1/4	42.03	42.29	1.78	2.29	3.56	4.07	4.85	5.44	0.365	0.65	0.87
1 1/2	48.11	48.41	2.03	2.54	3.68	4.19	5.08	5.69	0.47	0.77	1.03
2	60.17	60.47	2.54	3.05	3.91	4.42	5.54	6.2	0.717	1.04	1.43
2 1/2	72.84	73.2	2.79	3.30	5.16	5.77	7.01	7.85	0.952	1.57	2.2
3	88.70	89.1	3.18	3.68	5.49	6.15	7.62	8.53	1.31	2.14	2.91
4	114.1	114.5	3.81	4.32	6.02	6.73	8.56	9.58	2.0	3.05	4.26
5	141.05	141.55	-	-	6.22	7.347	9.52	10.67	-	4.18	6.42
6	168.0	168.56	-	-	7.11	7.98	10.97	12.29	-	5.37	8.13
8	218.7	219.46	-	-	8.18	9.17	12.7	14.22	-	8.11	12.4

• UPVC Electrical Conduits & Tubing according to NEMA TC-6 & ASTM F 512

Applications: Type EB for encased burial in concrete, Type DB for direct burial without concrete.

Nominal Size (inch)	Outside Diameter (mm)	PVC type EB 20		PVC type DB 60	
		Wall Thickness (mm)	Weight kg/m	Wall Thickness (mm)	Weight kg/m
2	60.17	1.52	0.465	1.52	0.465
3	88.7	1.55	0.703	2.34	1.000
4	114.1	2.08	1.170	3.07	1.650
5	141.05	2.62	1.170	3.86	2.50
6	168.0	3.18	2.530	4.62	3.570

• PVC Electrical Conduits & Tubing according to NEMA TC-8 & ASTM F 512

Applications: Type EB for encased burial in concrete, Type DB for direct burial without concrete.

Nominal Size (inch)	Outside Diameter (mm)	PVC type EB 35		PVC type DB 120	
		Wall Thickness (mm)	Weight kg/m	Wall Thickness (mm)	Weight kg/m
1	33.27	-	-	1.52	0.251
1 1/2	48.11	-	-	1.52	0.369
2	60.17	1.52	0.465	1.96	0.576
3	88.7	1.93	0.847	3.00	1.250
4	114.1	2.54	1.390	3.91	2.050
5	141.05	3.2	2.09	4.85	3.12
6	168.0	3.86	3.020	5.77	4.420

Length : 5.8 & 6 meters (Other lengths are available on request).
Colour : Grey.
SocketType : Solvent cement (SC/J) type

THERM INDUSTRY CO.
شركة اي توب ثيرم

• UPVC Electrical & Telephone Duct

Applications: Electrical and telephone duct.

Duct No.	Outside Diameter (mm)	Wall Thickness (mm)	
		min	max
54D	96.5 + /-0.2	3.25	3.65
56	53.9 + /-0.1	1.55	1.70
57	114.3 + / -0.2	3.4	3.8

Length :6 meters (Other lengths are available on request). :
Colour :Black.
Socket Type :Solvent cement (SC/J) type

• UPVC Telephone Duct (U-Gard)

Item Description	Wall Thickness (mm)	No. of Holes/pc	Length (cm/pc)	Weight (kg/pc)
36 U-Gard	2.8	10	150	0.60

Colour: Yellow.
Note: UV
Resistance

• Water Pressure Ratings at 180˚F(83˚C) for CPVC Pipe Schedule 40 and 80 (psi) According to ASTM F 441 SASO 1517 / 1999

Nominal Diameter in Inch	Schedule 40	Schedule 80 Unthreaded
1/4	195 (1.34)	280 (1.93)
1/2	150 (1.03)	210 (1.45)
3/4	120 (0.83)	170 (1.17)
1	110 (0.76)	155 (1.07)
11/4	90 (0.62)	130 (0.90)
11/2	80 (0.55)	115 (0.79)
2	70 (0.48)	100 (0.69)
3	65 (0.45)	90 (0.62)
4	55 (0.38)	80 (0.55)
6	45 (0.31)	70 (0.48)

THERM INDUSTRY CO.
شركة أي توب ثيرم

• Chlorinated Poly vinyl Chloride (CPVC) HOT WATER PIPES

CPVC pipes (Chlorinated Poly vinyl Chloride) are used in hot systems, where temperature degree could reach boiling levels as well as cold water distribution systems. It combine performance, durability and cost savings in addition to safety. I TOP uses the raw material from SABIC which manufacture CPVC compound according to American standard ASTM F441. conforming to the highest Saudi Arbia Standers (SASO 1517 / 1999)

• CPVC Pipes according to (ASTM F 441.SASO 1517 / 1999)

Nominal Size In Inch	Outside Diameter		Schedule 80 Minimum Wall Thickness		Nominal Weight Kg / m	Water Pressure Rating	
	Inch	mm	Inch	mm		Psi	Bar
1/4	0.540	13.7	0.119	3.02	0.230	1130	77.8
1/2	0.840	21.34	0.147	3.73	0.337	850	58.6
3/4	1.050	26 . 67	0.154	3.91	0.457	690	47.6
1	1.315	33. 40	0.179	4.55	0.671	630	43.4
1 1/4	1.660	42.20	0.191	4.85	0.928	520	35.9
1 1/2	1.900	48.30	0.200	5.08	1.13	470	32.4
2	2.375	60.33	0.218	5.54	1.56	400	27.6
3	3.500	88.9	0.300	7.62	2.9	370	25.5
4	4.500	114.3	0.337	9.52	4.3	320	22.1
6	6.625	168.3	0.432	10.97	8.1	280	19.3

• CPVC Pipes according to (Based on Astm F 441 Schedule 40 & 80) SASO 1517 / 1999

Nominal Size in Inch	O.D.MM		Schedule 40			Schedule 80		Weight Kg/m
			Thickness mm		Weight Kg/m	Thickness mm		
	Min.	Max	Min.	Max		Min.	Max	
1/2	21.2	21.54	2.8	3.3	0.24	3.7	4.2	0.337
3/4	26.6	26.9	2.9	3.4	0.33	3.9	4.4	0.457
1	33.4	33.7	3.4	3.9	0.48	4.6	5.1	0.671
1 1/4	42.1	42.4	3.6	4.1	0.65	4.9	5.4	0.928
1 1/2	48.1	48.4	3.7	4.2	0.77	5.1	5.7	1.13
2	60.2	60.5	3.9	4.4	1.04	5.5	6.2	1.56
3	88.7	89.1	5.5	6.2	2.14	7.9	8.5	2.9
4	114.1	114.5	6.0	6.7	3.05	8.6	9.6	4.3
6	168.0	168.5	7.1	8.0	5.37	11.0	12.3	8.1