

Edoburg®



# PVC-U Piping System

WATER TRANSPORT SOLUTIONS



**Edoburg**<sup>®</sup>  
PIPING SYSTEMS



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# About Edoburg

**Edoburg**, an ISO 9001 certified company, specialises in supplying high-quality piping systems that consistently meet stringent international standards, ensuring unparalleled performance of the piping systems. Our experienced team, equipped with extensive technical knowledge, coupled with our efficient operations and fast turnaround time, enables us to provide top-tier supply of piping products tailored to your needs.

## Our Mission

Edoburg's mission is to supply high-quality piping systems worldwide, offering a complete solution that meets international standards to ensure superior performance in every project.

## Product Range

Our stellar lineup of pipes, ready for every project:

- PEX Pipe: PEX-A, PEX-B, PEX-A EVOH, PEX-B EVOH
- PPR Pipe
- PERT Pipe
- HDPE Pipe
- MDPE Pipe
- PVC-C Pipe: Portable water, Reclaim water, Industrial
- PVC-U Pipe: Drainage, Portable water, Reclaim water, Industrial
- PVC-O
- Composite Pipe: PEX-AL-PEX, HDPE-AL-HDPE
- PVC Electrical Conduit
- PVC Hose

## Complete Solution Concept

Our wide range of products represent our complete solution concept.

With our products intended for diverse sectors, we offer individual and comprehensive system solutions. Focusing on the needs of projects and entire system.

We provide high standards of products in the market at all times. We always stand by our piping systems and reliable service network.

As a global pipe supplying company that stands out with successful operations ever since our incorporation, we act as a solution point to meet all your needs based on our technical knowledge, specialization and reliability.

## Quality Assurance

We are committed to excellence in every aspect of our operations. The products we supply comply with the international standards and certifications, ensuring reliability, durability, and safety in every application. With Edoburg, you can trust that you're receiving top-notch piping solutions that meet your specifications and exceed your expectations.

## Our Presence in the World

Our warehousing are strategically located in various places in **India**, **Vietnam** and **China**, to ensure efficient distribution of the products. We ensure fast deliveries with our modern logistics partners deployed at our local distribution hubs which are strategically located near the ports to ease the export of products. Edoburg Piping Systems exports its products all over the world.

## Our Market Segments

Based on our experience and high-quality standard of products in the sector, Edoburg Piping Systems supports its clients with a complete piping solutions for every project requirement.

- Chemical and Petrochemical
- Water and Wastewater
- Mining and Mineral Processing
- Power Generation
- Marine and Offshore
- Building and Construction
- Manufacturing Industries
- Agriculture
- Pharmaceuticals
- Infrastructure

# About Plastics

Plastics are polymers created by the chemical conversion of natural products or synthesized from organic materials. The primary components that make up the building blocks of plastics are long chains of carbon (C) and hydrogen (H) known as monomers.

The raw materials used for the production of plastics are natural compounds such as cellulose, coal, oil and natural gas. In the plastics industry, around 6 % of the petroleum products that come out from refineries is used.

Plastics fall into three main categories on the basis of their internal structure and the resulting mechanical characteristics: thermoplastics, thermosetting plastics and elastomers.

## Advantages of Plastics

Thermoplastics obviously demonstrate different characteristics than those of the metals traditionally used for piping.

Metal	Plastic
<b>High density</b> <ul style="list-style-type: none"> <li>Crane is needed for transport.</li> <li>Requires wide spacing for fixings.</li> <li>High anchoring forces, fixing required.</li> </ul>	<b>Low density</b> <ul style="list-style-type: none"> <li>Can be carried by hand up to d110.</li> <li>Requires minimal spacing for fixings.</li> <li>Simple and economical.</li> </ul>
<b>Thermal conductivity</b> <ul style="list-style-type: none"> <li>Insulation is needed to limit heat loss.</li> <li>Formation may result in corrosion.</li> </ul>	<b>Low thermal conductivity</b> <ul style="list-style-type: none"> <li>Limited heat loss.</li> <li>Low levels of condensation and resistance to corrosion.</li> </ul>
<b>Corrosion Behaviors</b> <ul style="list-style-type: none"> <li>Galvanic corrosion can occur.</li> <li>Corrosion reduces internal diameter.</li> <li>Reduced diameter causes pressure losses.</li> </ul>	<b>High Corrosion Resistance</b> <ul style="list-style-type: none"> <li>Galvanic Corrosion Free.</li> <li>Prevents corrosion and diameter reduction.</li> <li>No pressure losses.</li> </ul>
<b>Chemical resistance</b> <ul style="list-style-type: none"> <li>Low Resistance to Acids.</li> <li>Damage from Incrustation.</li> </ul>	<b>High chemical resistance</b> <ul style="list-style-type: none"> <li>A minimum of 25-years of life with correct jointing methods.</li> <li>Incrustation free.</li> </ul>

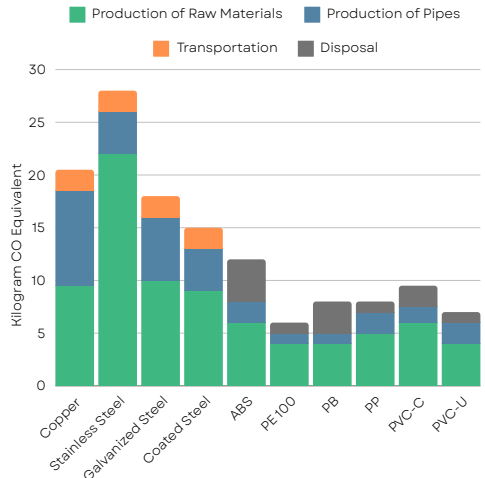
Thermoplastics in turn can be split into two main categories as partially-regulated (semi-crystalline) and irregular (amorphous) molecular structures.

- Semicrystalline thermoplastics, which have a partially ordered molecular structure: this category includes the polyolefins (polypropylene, polyethylene, polybutylene) and fluoropolymers (PP, PE, etc.)
- Amorphous thermoplastics, which have no crystalline regions and no packed molecular structure: this category includes the vinyl chlorides (PVC-U, PVC-C, etc.) and styrenes (ABS, polystyrene, etc.)

Semicrystalline materials are more suitable for hot welding, while amorphous thermoplastics are ideal for cementing or cold welding (solvent cementing).

## Carbon Footprint of Plastics Vs Metal

It is the total of all greenhouse gases emitted to the atmosphere during the entire lifetime including the processes for extracting a product having carbon footprint from under the ground, refining, producing, using and disposing of that product.





# PVC-U Piping System

Unplasticised Polyvinyl Chloride (UPVC / PVC-U) is a plastic piping system material suitable for use within many areas of water treatment, chemical processing, food and beverage, and similar industries / processes.

PVC-U is one of the specified thermoplastic for piping system components, including valves, fittings, flanges and many speciality products. PVC has excellent chemical and corrosion resistance to a broad range of fluids.

- Lead-free\*, tough, durable with high tensile and impact strength.
- Durable and free from weaknesses caused by rusting, weathering and chemical.
- Lower combustibility, flammability, flame propagation and heat release.
- PVC-U is generally inert to most mineral acids, alkalies, salts and paraffinic hydrocarbon solutions
- PVC-U pipes can be cut, shaped, welded and joined easily.
- PVC-U are non-toxic and lead-free which makes them a safe material for potable water.
- Smooth inner surface ensures high flow rate and low frictional losses.
- PVC-U non-conductor of electricity.

## Fields of Application

- Cold Water Plumbing Application
- Water Distribution Mains
- Industrial Process Lines
- Swimming Pools
- Plants & Tanning Plants
- Hand Pumps
- Sugar, Paper & Distillery Industries
- Salt Water Line
- Aggressive Fluid Transportation
- Coal Washing & Ash Handling

## Certifications



Only those products bearing the above marks are certified.

## Technical data

### Working Temperature

- 0°C - 60°C (32°F - 140°F)

### Pipe Standard

- ASTM D-1785
- AS/NZS 1477
- ISO 4222-2
- ISO 3633
- AS/NZS1260
- IS 4985
- DIN 8062
- ISO 1452-2
- BS EN 1452
- BS 3506

### Fittings Standard

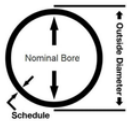
- ASTM D-2466
- ISO 3633
- AS/NZS 1260

# PVC-U Pipe Range

Pipe as per ASTM D 1785

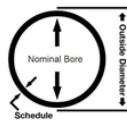
HSN Code: 39172390

## PVC-U SCHEDULE - 40 PIPE



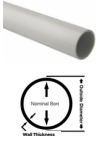
Code	Nominal Size		Outside Diameter (mm)	Length (m)	Color	Pkg.
	(mm)	(inch)				
UP40AT1	15	1/2	21.34	3m / 6m	White/ Grey	30
UP40AT2	20	3/4	26.67	3m / 6m	White/ Grey	24
UP40AT3	25	1	33.40	3m / 6m	White/ Grey	16
UP40AT4	32	1 1/4	42.16	3m / 6m	White/ Grey	12
UP40AT5	40	1 1/2	48.26	3m / 6m	White/ Grey	10
UP40AT6	50	2	60.32	3m / 6m	White/ Grey	8
UP40AT7	65	2 1/2	73.02	3m / 6m	White/ Grey	4
UP40AT8	80	3	88.90	3m / 6m	White/ Grey	3
UP40AT9	100	4	114.30	3m / 6m	White/ Grey	2
UP40AT10	150	6	168.28	3m / 6m	White/ Grey	1
UP40AT11	200	8	219.08	3m / 6m	White/ Grey	1
UP40AT12	250	10	273.05	3m / 6m	White/ Grey	1

## PVC-U SCHEDULE - 80 PIPE



Code	Nominal Size		Outside Diameter (mm)	Length (m)	Color	Pkg.
	(mm)	(inch)				
UP80AT1	15	1/2	21.34	3m / 6m	White/ Grey	30
UP80AT2	20	3/4	26.67	3m / 6m	White/ Grey	24
UP80AT3	25	1	33.40	3m / 6m	White/ Grey	16
UP80AT4	32	1 1/4	42.16	3m / 6m	White/ Grey	12
UP80AT5	40	1 1/2	48.26	3m / 6m	White/ Grey	10
UP80AT6	50	2	60.32	3m / 6m	White/ Grey	8
UP80AT7	65	2 1/2	73.02	3m / 6m	White/ Grey	4
UP80AT8	80	3	88.90	3m / 6m	White/ Grey	3
UP80AT9	100	4	114.30	3m / 6m	White/ Grey	2
UP80AT10	150	6	168.28	3m / 6m	White/ Grey	1
UP80AT11	200	8	219.08	3m / 6m	White/ Grey	1
UP80AT12	250	10	273.05	3m / 6m	White/ Grey	1

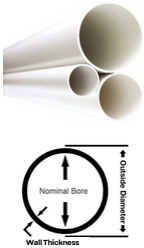
## PVC-U PIPES CIOD Series



Code	Nominal Size (mm)	Outside Diameter (mm)	Socket Length (mm)	Nominal Wall Thickness (mm)	Nominal Pressure	Length (m)	Color
UPVCI01	100	122.1	120	6.7	PN12	4m / 6m	White / Grey / Blue
UPVCI02	150	177.5	130	9.7	PN12	4m / 6m	White / Grey / Blue
UPVCI03	100	222.6	160	9.7	PN10	4m / 6m	White / Grey / Blue
UPVCI04	250	280.9	200	10.7	PN10	4m / 6m	White / Grey / Blue

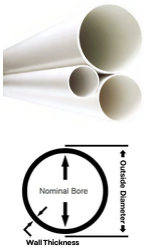
# Pipe as per AS/NZS 1260 & ISO 3633

## PVC-U SOLID PIPES



Code	Nominal Size (mm)	Nominal Wall Thickness (mm)	Length (m)	Color
UPAS1	40mm	2.0mm	5.8m	White
UPAS2	50mm	2.0mm	5.8m	White
UPAS3	75mm	2.3mm	5.8m	White
UPAS4	110mm	3.2mm	5.8m	White
UPAS5	160mm	4.0mm	5.8m	White
UPAS6	200mm	4.9mm	5.8m	White
UPAS7	250mm	6.2mm	5.8m	White
UPAS8	315mm	7.8mm	5.8m	White

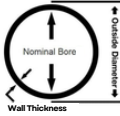
## PVC-U PRESSURE DRAINAGE PIPES



Code	Nominal Size (mm)	Nominal Wall Thickness (mm)	Length (m)	Color
UPAS9	110mm	4.0 - 6.0mm	5.8m	White
UPAS10	160mm	5.0 - 6.0mm	5.8m	White



## PVC-U PIPES



Code	Nominal Size		Length (m)	Color
	(mm)	(inch)		
UPDIB1	15	1/2"	3m / 6m	White/ Grey
UPDIB2	20	3/4"	3m / 6m	White/ Grey
UPDIB3	25	1"	3m / 6m	White/ Grey
UPDIB4	32	1 1/4"	3m / 6m	White/ Grey
UPDIB5	40	1 1/2"	3m / 6m	White/ Grey
UPDIB6	50	2"	3m / 6m	White/ Grey
UPDIB7	65	2 1/2"	3m / 6m	White/ Grey
UPDIB8	80	3"	3m / 6m	White/ Grey
UPDIB9	100	4"	3m / 6m	White/ Grey
UPDIB10	150	6"	3m / 6m	White/ Grey
UPDIB11	200	8"	3m / 6m	White/ Grey
UPDIB12	250	10"	3m / 6m	White/ Grey
UPDIB13	300	12"	3m / 6m	White/ Grey

## Pipe as IS 4985, DIN 8062, ASTM D 1785, ISO 1452-2, BSEN 1452 & BS 3506

### PVC-U Ringfit Pressure Pipe

Normal Outside Diameter (OD)	Class 1 (PN)2.5 kg/cm <sup>2</sup>		Class 2 (PN)4 kg/cm <sup>2</sup>		Class 3 (PN)6 kg/cm <sup>2</sup>		Class 4 (PN)8 kg/cm <sup>2</sup>		Class 5 (PN)10 kg/cm <sup>2</sup>		Class 6 (PN)12.5 kg/cm <sup>2</sup>	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
020	-	-	-	-	-	-	-	-	1.1	1.5	1.4	1.8
025	-	-	-	-	-	-	1.2	1.6	1.4	1.8	1.7	2.1
032	-	-	-	-	-	-	1.5	1.9	1.8	2.2	2.2	2.7
040	-	-	-	-	1.4	1.8	1.6	2.2	2.2	2.7	2.8	3.3
050	-	-	-	-	1.7	2.1	2.3	2.8	2.8	3.3	3.4	4.0
063	-	-	1.5	1.9	2.2	2.7	2.8	3.3	3.5	4.1	4.3	5.0
075	-	-	1.8	2.2	2.6	3.1	3.4	4.0	4.2	4.9	5.1	5.9
090	1.3	1.7	2.1	2.6	3.1	3.7	4.0	4.6	5.0	5.7	6.1	7.1
110	1.6	2.0	2.5	3.0	3.7	4.3	4.9	5.6	6.1	7.1	7.5	8.7
125	1.8	2.2	2.9	3.4	4.3	5.0	5.6	6.4	6.9	8.0	8.5	9.8
140	2.0	2.4	3.2	3.8	4.8	5.5	6.3	7.3	7.7	8.9	9.5	11.0
160	2.3	2.8	3.7	4.3	5.4	6.2	7.2	8.3	8.8	10.2	10.9	12.6
180	2.6	3.1	4.2	4.8	6.1	7.1	8.0	9.2	9.9	11.4	12.2	14.1
200	2.9	3.4	4.6	5.3	6.8	7.9	8.9	10.3	11.0	12.7	13.6	15.7
225	3.3	3.9	5.2	6.0	7.6	8.8	10.0	11.5	12.4	14.3	15.3	17.6
250	3.6	4.2	5.7	6.5	8.5	9.8	11.2	12.9	13.8	15.9	17.0	19.6
280	4.1	4.8	6.4	7.4	9.5	11.0	12.5	14.4	15.4	17.8	19.0	21.9
315	4.6	5.3	7.2	8.3	10.7	12.4	14.0	16.1	17.3	19.8	21.4	24.7

# PVC-U Fittings Range

## Fittings as per ASTM D 2466 & ASTM D 2467

HSN Code: 391740

**Note:** Fittings of ASTM D 2466 & ASTM D 2467 standard are available in **white & grey** color.

### Coupler (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT1	15	1/2	900
UPF80AT2	20	3/4	500
UPF80AT3	25	1	400
UPF80AT4	32	1 1/4	240
UPF80AT5	40	1 1/2	150
UPF80AT6	50	2	110
UPF80AT7	65	2 1/2	60
UPF80AT8	80	3	40
UPF80AT9	100	4	25
UPF80AT10	150	6	4

### Coupler (Sch 40)



Code	Size		Pkg.
	(mm)	(inch)	
UPF40AT1	15	1/2	900
UPF40AT2	20	3/4	500
UPF40AT3	25	1	400
UPF40AT4	32	1 1/4	250
UPF40AT5	40	1 1/2	175
UPF40AT6	50	2	150
UPF40AT7	150	6	5

### Elbow (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT11	15	1/2	900
UPF80AT12	20	3/4	400
UPF80AT13	25	1	275
UPF80AT14	32	1 1/4	100
UPF80AT15	40	1 1/2	100
UPF80AT16	50	2	75
UPF80AT17	65	2 1/2	35
UPF80AT18	80	3	25
UPF80AT19	100	4	15
UPF80AT20	150	6	2

### Equal Tee (Sch 40)



Code	Size		Pkg.
	(mm)	(inch)	
UPF40AT15	15	1/2	400
UPF40AT16	20	3/4	300
UPF40AT17	25	1	175
UPF40AT18	32	1 1/4	110
UPF40AT19	40	1 1/2	75
UPF40AT20	50	2	60
UPF40AT21	150	6	4

### Elbow (Sch 40)



Code	Size		Pkg.
	(mm)	(inch)	
UPF40AT8	15	1/2	900
UPF40AT9	20	3/4	400
UPF40AT10	25	1	250
UPF40AT11	32	1 1/4	150
UPF40AT12	40	1 1/2	110
UPF40AT13	50	2	63
UPF40AT14	150	6	4

### Union (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT21	15	1/2	200
UPF80AT22	20	3/4	150
UPF80AT23	25	1	125
UPF80AT24	32	1 1/4	100
UPF80AT25	40	1 1/2	50
UPF80AT26	50	2	50
UPF80AT27	65	2 1/2	30
UPF80AT28	80	3	20
UPF80AT29	100	4	5

## Elbow 45° (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT30	15	1/2	450
UPF80AT31	20	3/4	425
UPF80AT32	25	1	260
UPF80AT33	32	1 1/4	90
UPF80AT34	40	1 1/2	75
UPF80AT35	50	2	60
UPF80AT36	65	2 1/2	30
UPF80AT37	80	3	20
UPF80AT38	100	4	14
UPF80AT39	150	6	3
UPF80AT40	200	8	2

## End Cap (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT41	15	1/2	1200
UPF80AT42	20	3/4	850
UPF80AT43	25	1	500
UPF80AT44	32	1 1/4	320
UPF80AT45	40	1 1/2	240
UPF80AT46	50	2	160
UPF80AT47	65	2 1/2	75
UPF80AT48	80	3	60
UPF80AT49	100	4	30
UPF80AT50	150	6	6

## Equal Tee (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT51	15	1/2	500
UPF80AT52	20	3/4	320
UPF80AT53	25	1	175
UPF80AT54	32	1 1/4	75
UPF80AT55	40	1 1/2	60
UPF80AT56	50	2	40
UPF80AT57	65	2 1/2	28
UPF80AT58	80	3	20
UPF80AT59	100	4	8
UPF80AT60	200	8	1

## End Cap (Sch 40)



Code	Size		Pkg.
	(mm)	(inch)	
UPF40AT22	150	6	10

## Four Way Tee (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT61	15	1/2	200

## Male Threaded Adapter (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT62	15	1/2	1150
UPF80AT63	20	3/4	720
UPF80AT64	25	1	450
UPF80AT65	32	1 1/4	260
UPF80AT66	40	1 1/2	200
UPF80AT67	50	2	140
UPF80AT68	65	2 1/2	60
UPF80AT69	80	3	45
UPF80AT70	100	4	30

## Tank Connector (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT71	15	1/2	260
UPF80AT72	20	3/4	200
UPF80AT73	25	1	125
UPF80AT74	32	1 1/4	70
UPF80AT75	40	1 1/2	60
UPF80AT76	50	2	35
UPF80AT77	65	2 1/2	1
UPF80AT78	80	3	8
UPF80AT79	100	4	5

## Female Threaded Adaptor (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT80	15	1/2	800
UPF80AT81	20	3/4	650
UPF80AT82	25	1	400
UPF80AT83	32	1 1/4	250
UPF80AT84	40	1 1/2	150
UPF80AT85	50	2	120
UPF80AT86	65	2 1/2	60
UPF80AT87	80	3	40
UPF80AT88	100	4	20

## Tank Connector (Short Body) (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT89	15	1/2	250
UPF80AT90	20	3/4	200
UPF80AT91	25	1	150
UPF80AT92	32	1 1/4	100
UPF80AT93	40	1 1/2	75
UPF80AT94	50	2	50

## Extended End Plug (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT95	15	1/2	1000
UPF80AT96	20	3/4	800

## End Plug (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT97	15	1/2	2000
UPF80AT98	20	3/4	1200
UPF80AT99	25	1	1100
UPF80AT100	32	1 1/4	600
UPF80AT101	40	1 1/2	500

## Pipe Clip (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT109	15	1/2	1200
UPF80AT110	20	3/4	1100
UPF80AT111	25	1	1050
UPF80AT112	32	1 1/4	900
UPF80AT113	40	1 1/2	500
UPF80AT114	50	2	200

## Reducer (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT117	20x15	3/4 X 1/2	550
UPF80AT118	25x15	1 X 1/2	450
UPF80AT119	25x20	1 X 3/4	400
UPF80AT120	32x15	1 1/4 X 1/2	250
UPF80AT121	32 X 20	1 1/4 X 3/4	200
UPF80AT122	32x25	1 1/4 X 1	250
UPF80AT123	40x15	1 1/2 X 1/2	200
UPF80AT124	40x20	1 1/2 X 3/4	175
UPF80AT125	40x25	1 1/2 X 1	200
UPF80AT126	40x32	1 1/2 X 1 1/4	150
UPF80AT127	50x25	2 X 1	150
UPF80AT128	50x32	2 X 1 1/4	130
UPF80AT129	50x40	2 X 1 1/2	125
UPF80AT130	65x20	2 1/2 X 3/4	35
UPF80AT131	65x40	2 1/2 X 1 1/2	40
UPF80AT132	65x50	2 1/2 X 2	45
UPF80AT133	80x50	3 X 2	45
UPF80AT134	80x65	3 X 2 1/2	40
UPF80AT135	100x50	4 X 2	25
UPF80AT136	100x65	4 X 2 1/2	25
UPF80AT137	100x80	4 X 3	22
UPF80AT138	150x100	6 X 4	5
UPF80AT139	200x150	8 X 6	5

## Threaded Tee (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT169	15	1/2	450
UPF80AT170	20x15	3/4 X 1/2	280
UPF80AT171	20	3/4	240
UPF80AT172	25x15	1 X 1/2	190
UPF80AT173	25x20	1 X 3/4	180
UPF80AT174	25	1	160

## Flange With Socket (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT102	25	1	60
UPF80AT103	32	1 1/4	50
UPF80AT104	40	1 1/2	40
UPF80AT105	50	2	30
UPF80AT106	65	2 1/2	20
UPF80AT107	80	3	15
UPF80AT108	100	4	10

## Blind Flange (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT115	65	2 1/2	20
UPF80AT116	100	4	12

## Reducing Tee (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT140	20x15	3/4 X 1/2	300
UPF80AT141	25x15	1 X 1/2	200
UPF80AT142	25x20	1 X 3/4	200
UPF80AT143	32x15	1 1/4 X 1/2	125
UPF80AT144	32x20	1 1/4 X 3/4	120
UPF80AT145	32x25	1 1/4 X 1	120
UPF80AT146	40x15	1 1/2 X 1/2	90
UPF80AT147	40x20	1 1/2 X 3/4	90
UPF80AT148	40x25	1 1/2 X 1	90
UPF80AT149	40x32	1 1/2 X 1 1/4	80
UPF80AT150	50x15	2 X 1/2	50
UPF80AT151	50x20	2 X 3/4	50
UPF80AT152	50x25	2 X 1	50
UPF80AT153	50x32	2 X 1 1/4	40
UPF80AT154	50x40	2 X 1 1/2	40
UPF80AT155	65x20	2 1/2 X 3/4	20
UPF80AT156	65x25	2 1/2 X 1	18
UPF80AT157	65x50	2 1/2 X 2	30
UPF80AT158	80x32	3 X 1 1/4	16
UPF80AT159	80x40	3 X 1 1/2	18
UPF80AT160	80x50	3 X 2	16
UPF80AT161	80x65	3 X 2 1/2	16
UPF80AT162	100x20	4 X 3/4	6
UPF80AT163	100x25	4 X 1	10
UPF80AT164	100x32	4 X 1 1/4	10
UPF80AT165	100x40	4 X 1 1/2	10
UPF80AT166	100x50	4 X 2	8
UPF80AT167	100x65	4 X 2 1/2	8
UPF80AT168	100x80	4 X 3	8

## Reducing Bush (Sch 40)



Code	Size		Pkg.
	(mm)	(inch)	
UPF40AT23	150 x 80	6x3	10
UPF40AT24	150 x 100	6x4	10

## Reducing Bush (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT175	20x15	3/4 X 1/2	1500
UPF80AT176	25x15	1 X 1/2	800
UPF80AT177	25x20	1 X 3/4	800
UPF80AT178	32x15	1 1/4 X 1/2	450
UPF80AT179	32 X 20	1 1/4 X 3/4	475
UPF80AT180	32x25	1 1/4 X 1	500
UPF80AT181	40x15	1 1/2 X 1/2	250
UPF80AT182	40x20	1 1/2 X 3/4	280
UPF80AT183	40x25	1 1/2 X 1	300
UPF80AT184	40x32	1 1/2 X 1 1/4	400
UPF80AT185	50x15	2 X 1/2	190
UPF80AT186	50x20	2 X 3/4	200
UPF80AT187	50x25	2 X 1	225
UPF80AT188	50x32	2 X 1 1/4	250
UPF80AT189	50x40	2 X 1 1/2	240
UPF80AT190	65x40	2 1/2 X 1 1/2	60
UPF80AT191	65x50	2 1/2 X 2	60
UPF80AT192	80x40	3 X 1 1/2	60
UPF80AT193	80x50	3 X 2	60
UPF80AT194	80x65	3 X 2 1/2	60
UPF80AT195	100x50	4 X 2	28
UPF80AT196	100x65	4 X 2 1/2	28
UPF80AT197	100x80	4 X 3	28

## Red. Male Threaded Adaptor (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT198	20x15	3/4 X 1/2	650
UPF80AT199	25x20	1 X 3/4	300

## Red. Female Threaded Adaptor (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT200	20x15	3/4 X 1/2	650

## Reducing Elbow (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT201	20x15	3/4 X 1/2	400
UPF80AT202	25x15	1 X 1/2	275
UPF80AT203	25x20	1 X 3/4	250

## Vanstone (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT204	200	8	2

## Threaded Elbow (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT205	15	1/2	600
UPF80AT206	20	3/4	400
UPF80AT207	20x15	3/4 x 1/2	350
UPF80AT208	25	1	250
UPF80AT209	25x15	1 x 3/4	200

## Bend 90°



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT210	15	1/2	400
UPF80AT211	20	3/4	250
UPF80AT212	25	1	100
UPF80AT213	32	1 1/4	70
UPF80AT214	40	1 1/2	50
UPF80AT215	50	2	36

## Cross Over (Sch 40)



Code	Size		Pkg.
	(mm)	(inch)	
UPF40AT25	15	1/2	60
UPF40AT26	20	3/4	50
UPF40AT27	25	1	30

## Male Threaded Tee (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT224	15	1/2	175
UPF80AT225	20	3/4	125
UPF80AT226	20x15	3/4 X 1/2	150
UPF80AT227	25	1	45
UPF80AT228	25x15	1 X 1/2	90
UPF80AT229	25x20	1 X 3/4	80

## Male Threaded Adaptor (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT216	15	1/2	300
UPF80AT217	20x15	3/4 X 1/2	225
UPF80AT218	20	3/4	175
UPF80AT219	25	1	125
UPF80AT220	25x15	1 X 1/2	200
UPF80AT221	32	1 1/4	75
UPF80AT222	40	1 1/2	70
UPF80AT223	50	2	40

## Male Threaded Adaptor - Heavy (Sch 80)



Code	Size		Pkg.
	(mm)	(inch)	
UPF80AT230	65	2 1/2	10
UPF80AT231	80	3	10

## Female Threaded Adaptor (Sch 80)



Code	Size (mm)	Size (inch)	Pkg.
UPF80AT232	15	1/2	350
UPF80AT233	20x15	3/4 X 1/2	200
UPF80AT234	20	3/4	230
UPF80AT235	25	1	150
UPF80AT236	25x15	1 X 1/2	250
UPF80AT237	25x20	1 X 3/4	150
UPF80AT238	32	1 1/4	100
UPF80AT239	40	1 1/2	50
UPF80AT240	50	2	30

## Male Threaded Elbow (Sch 80)



Code	Size (mm)	Size (inch)	Pkg.
UPF80AT241	15	1/2	175
UPF80AT242	20	3/4	125
UPF80AT243	20x15	3/4 X 1/2	175
UPF80AT244	25	1	60
UPF80AT245	25x15	1 X 1/2	100
UPF80AT246	25x20	1 X 3/4	80

## Female Threaded Elbow (Sch 80)



Code	Size (mm)	Size (inch)	Pkg.
UPF80AT247	15	1/2	350
UPF80AT248	20	3/4	175
UPF80AT249	20x15	3/4 X 1/2	250
UPF80AT250	25	1	75
UPF80AT251	25x15	1 X 1/2	110
UPF80AT252	25x20	1 X 3/4	100
UPF80AT253	32	1 1/4	50

## Female Threaded Adaptor (Sch 80)



Code	Size (mm)	Size (inch)	Pkg.
UPF80AT254	65	2 1/2	15
UPF80AT255	80	3	15

## Female Threaded Bush (Sch 80)



Code	Size (mm)	Size (inch)	Pkg.
UPF80AT256	25 X 15	1 X 1/2	300

## Female Threaded Tee (Sch 80)



Code	Size (mm)	Size (inch)	Pkg.
UPF80AT257	15	1/2	250
UPF80AT258	20	3/4	150
UPF80AT259	20x15	3/4 X 1/2	175
UPF80AT260	25	1	75
UPF80AT261	25x15	1 X 1/2	125
UPF80AT262	25x20	1 X 3/4	90

## Ball Valves (Sch 80)



HSN Code: 8481

Code	Size (mm)	Size (inch)	Pkg.
UPF80AT263	15	1/2	200
UPF80AT264	20	3/4	120
UPF80AT265	25	1	84
UPF80AT266	32	1 1/4	56
UPF80AT267	40	1 1/2	36
UPF80AT268	50	2	24
UPF80AT269	65	2 1/2	12
UPF80AT270	80	3	6
UPF80AT271	100	4	3

## Solvent Cements

HSN Code: 35061000

### Solvent Cement (Tin)



Code	Size (ml)	Pkg.
UPSOC1	50ml	350
UPSOC2	100ml	144
UPSOC3	250ml	96
UPSOC4	500ml	48
UPSOC5	1000ml	24

### Primer Clear (Tin)



Code	Size (ml)	Pkg.
UPSOC6	118ml	24
UPSOC7	237ml	12
UPSOC8	473ml	12
UPSOC9	946ml	6

### Solvent Cement (Tube)



Code	Size (ml)	Pkg.
UPSOC10	25ml	384
UPSOC11	50ml	256

Note: Fittings of AS/NZS 1260 & ISO 3633 standard are available in **white & grey** color.

## Straight Coupling



Code	Size (mm)	Pkg.
UPFAS1	32x32	630
UPFAS2	40x40	330
UPFAS3	50x50	220
UPFAS4	75x75	120
UPFAS5	90x90	72
UPFAS6	110x110	48
UPFAS7	125x125	36
UPFAS8	160x160	36
UPFAS9	200x200	24
UPFAS10	250x250	9
UPFAS11	315x315	4

## Vertical Pipe Cleanout



Code	Size (mm)	Pkg.
UPFAS12	50x50	75
UPFAS13	75x75	50
UPFAS14	110x110	34
UPFAS15	125x125	16
UPFAS16	160x160	16
UPFAS17	200x200	8

## Simple Expansion Joint



Code	Size (mm)	Pkg.
UPFAS18	50x50	156
UPFAS19	75x75	96
UPFAS20	110x110	33
UPFAS21	125x125	24
UPFAS22	160x160	18
UPFAS23	200x200	18

## Expansion Joint



Code	Size (mm)	Pkg.
UPFAS24	50x50	112
UPFAS25	75x75	60
UPFAS26	110x110	60
UPFAS27	125x125	18
UPFAS28	160x160	21
UPFAS29	200x200	18

## Reducing Bush



Code	Size (mm)	Pkg.
UPFAS30	40x32	990
UPFAS31	50x40	570
UPFAS32	75x50	178
UPFAS33	110x50	132
UPFAS34	110x75	132
UPFAS35	125x110	35
UPFAS36	160x110	42
UPFAS37	200x110	26
UPFAS38	200x160	24
UPFAS39	250x110	10
UPFAS40	250x160	12
UPFAS41	250x200	12
UPFAS42	315x110	14
UPFAS43	315x160	7
UPFAS44	315x200	14

## Reducing Coupling



Code	Size (mm)	Pkg.
UPFAS45	75x50	108
UPFAS46	110x50	84
UPFAS47	110x75	84
UPFAS48	160x110	33
UPFAS49	200x160	36

## De-centered Reducing Coupling



Code	Size (mm)	Pkg.
UPFAS50	75x50	120
UPFAS51	110x75	96
UPFAS52	160x110	36

## Built-in-Straight Connector



Code	Size (mm)	Pkg.
UPFAS53	50	120
UPFAS54	75	45
UPFAS55	110	60
UPFAS56	160	32

## Elbow with Cleanout



Code	Size (mm)	Pkg.
UPFAS57	50x50	70
UPFAS58	75x75	50
UPFAS59	110x110	32
UPFAS60	160x160	16
UPFAS61	200x200	5

## Single Socket Elbow (45°)



Code	Size (mm)	Pkg.
UPFAS62	50x50	65
UPFAS63	75x75	40
UPFAS64	110x110	32

## Elbow



Code	Size (mm)	Pkg.
UPFAS65	32x32	231
UPFAS66	40x40	138
UPFAS67	50x50	90
UPFAS68	75x75	50
UPFAS69	90x90	32
UPFAS70	110x110	40
UPFAS71	125x125	24
UPFAS72	160x160	16
UPFAS73	200x200	8
UPFAS74	250x250	4
UPFAS75	315x315	2

## Elbow (45°)



Code	Size (mm)	Pkg.
UPFAS76	32x32	364
UPFAS77	40x40	210
UPFAS78	50x50	135
UPFAS79	75x75	90
UPFAS80	90x90	48
UPFAS81	110x110	60
UPFAS82	125x125	36
UPFAS83	160x160	16
UPFAS84	200x200	10
UPFAS85	250x250	6
UPFAS86	315x315	2

## Elbow with Cleanout (45°)



Code	Size (mm)	Pkg.
UPFAS87	50x50	100
UPFAS88	75x75	45
UPFAS89	110x110	40
UPFAS90	160x160	18
UPFAS91	200x200	8

## Elbow (88°)



Code	Size (mm)	Pkg.
UPFAS92	110x110	36

## Elbow with Cleanout (135°)



Code	Size (mm)	Pkg.
UPFAS96	50x50	60
UPFAS97	75x75	35
UPFAS98	110x110	24

## Elbow (135°)



Code	Size (mm)	Pkg.
UPFAS93	50x50	80
UPFAS94	75x75	40
UPFAS95	110x110	28

## Necking Elbow



Code	Size (mm)	Pkg.
UPFAS101	50	106
UPFAS102	75	60
UPFAS103	110	44

## Reducing Elbow



Code	Size (mm)	Pkg.
UPFAS96	50x50	110
UPFAS97	75x50	75
UPFAS98	110x50	36
UPFAS99	110x75	27
UPFAS100	110x90	40

## Sweep Junction



Code	Size (mm)	Pkg.
UPFAS104	32x32x32	192
UPFAS105	40x40x40	117
UPFAS106	50x50x50	70
UPFAS107	75x75x75	40
UPFAS108	90x90x90	22
UPFAS109	110x110x110	28
UPFAS110	125x125x125	20
UPFAS111	160x160x160	12
UPFAS112	200x200x200	5
UPFAS113	250x250x250	2
UPFAS114	315x315x315	1

## Reducing Sweep Junction



Code	Size (mm)	Pkg.
UPFAS115	75x50x75	60
UPFAS116	10x50x110	54
UPFAS117	110x75x110	36
UPFAS118	125x110x125	20
UPFAS119	160x75x160	16
UPFAS120	160x110x160	16
UPFAS121	200x110x200	10
UPFAS122	200x160x200	6
UPFAS123	250x110x250	4
UPFAS124	250x160x250	4
UPFAS125	250x200x250	4
UPFAS126	315x110x315	2
UPFAS127	315x200x315	1
UPFAS128	315x250x315	1



## Y-Branch Tee (45°)



Code	Size (mm)	Pkg.
UPFAS129	32x32x32	154
UPFAS130	40x40x40	96
UPFAS131	50x50x50	60
UPFAS132	75x75x75	35
UPFAS133	90x90x90	20
UPFAS134	110x110x110	20
UPFAS135	125x125x125	16
UPFAS136	160x160x160	8
UPFAS137	200x200x200	4

## Reducing Y-Branch Tee (45°)



Code	Size (mm)	Pkg.
UPFAS138	50x32x50	80
UPFAS139	75x50x75	45
UPFAS140	110x50x110	48
UPFAS141	110x75x110	32
UPFAS142	160x75x160	16
UPFAS143	160x110x160	12
UPFAS144	200x75x200	10
UPFAS145	200x110x200	7
UPFAS146	200x160x200	4
UPFAS147	250x110x250	4
UPFAS148	250x160x250	3

## Cross



Code	Size (mm)	Pkg.
UPFAS149	50x50x50x50	54
UPFAS150	75x75x75x75	24
UPFAS151	110x110x110x110	20
UPFAS152	160x160x160x160	8
UPFAS153	200x200x200x200	4

## Reducing Cross



Code	Size (mm)	Pkg.
UPFAS154	75x50x50x75	45
UPFAS155	110x50x50x110	48
UPFAS156	110x75x75x110	29
UPFAS157	160x110x110x160	12
UPFAS158	200x110x110x200	5
UPFAS159	200x160x160x200	5

## Side Outlet Tee



Code	Size (mm)	Pkg.
UPFAS160	50x50x50x50	50
UPFAS161	75x75x75x75	24
UPFAS162	110x110x110x110	16

## Reducing Side Outlet Tee



Code	Size (mm)	Pkg.
UPFAS163	75x50x50x75	48
UPFAS164	110x50x50x110	45
UPFAS165	110x75x75x110	12
UPFAS166	125x110x110x125	8
UPFAS167	160x110x110x160	12

## Y-Branch Cross (45°)



Code	Size (mm)	Pkg.
UPFAS168	32x32x32x32	105
UPFAS169	40x40x40x40	60
UPFAS170	50x50x50x50	40
UPFAS171	75x75x75x75	16
UPFAS172	110x110x110x110	16
UPFAS173	160x160x160	6
UPFAS174	200x200x200	3

## Reducing Y-Branch Cross (45°)



Code	Size (mm)	Pkg.
UPFAS175	50x32x32x50	55
UPFAS176	75x50x50x75	30
UPFAS177	110x50x50x110	35
UPFAS178	110x75x75x110	24
UPFAS179	160x75x75x160	12
UPFAS180	160x110x110x160	6
UPFAS181	200x75x75x200	8
UPFAS182	200x160x160x200	3

## H-Pipe Fitting



Code	Size (mm)	Pkg.
UPFAS183	75x75x75	11
UPFAS184	110x75x75	16
UPFAS185	110x75x110	12
UPFAS186	160x75x75	7
UPFAS187	160x75x110	7
UPFAS188	160x75x160	6

## Trap



Code	Size (mm)	Pkg.
UPFAS191	50	90
UPFAS192	75	55
UPFAS193	110	32
UPFAS194	160	15

## Sweep Junction with Cleanout



Code	Size (mm)	Pkg.
UPFAS189	75x75x75	30
UPFAS190	110x110x110	24

### Trap with Cleanout



Code	Size (mm)	Pkg.
UPFAS195	50	70
UPFAS196	75	40
UPFAS197	110	32
UPFAS198	160	12

### Single Socket Trap



Code	Size (mm)	Pkg.
UPFAS199	50	50
UPFAS200	75	30
UPFAS201	110	24
UPFAS202	160	9

### Single Socket Trap with Cleanout



Code	Size (mm)	Pkg.
UPFAS203	50	40
UPFAS204	75	30
UPFAS205	110	24
UPFAS206	160	15

### P-Trap



Code	Size (mm)	Pkg.
UPFAS207	50	40
UPFAS208	75	25
UPFAS209	110	16
UPFAS210	160	6

### P-Trap with Cleanout



Code	Size (mm)	Pkg.
UPFAS211	50	40
UPFAS212	75	25
UPFAS213	110	16
UPFAS214	160	6

### Lengthen P-Trap



Code	Size (mm)	Pkg.
UPFAS215	50	40
UPFAS216	75	25
UPFAS217	110	16

### Lengthen P-Trap with Cleanout



Code	Size (mm)	Pkg.
UPFAS218	50	35
UPFAS219	75	20
UPFAS220	110	16

### Single Socket P-Trap



Code	Size (mm)	Pkg.
UPFAS221	50	30
UPFAS222	75	20
UPFAS223	110	12

### Lengthen Single Socket P-Trap with Cleanout



Code	Size (mm)	Pkg.
UPFAS224	50	30
UPFAS225	75	20
UPFAS226	110	8

### S-Trap



Code	Size (mm)	Pkg.
UPFAS227	50	60
UPFAS228	75	40
UPFAS229	110	32
UPFAS230	160	12

### S-Trap with Cleanout



Code	Size (mm)	Pkg.
UPFAS231	50	32
UPFAS232	75	20
UPFAS233	110	16
UPFAS234	160	6

### Tee (88°)



Code	Size (mm)	Pkg.
UPFAS235	10x110x110	24

### Round Water Seal Floor Drain



Code	Size (mm)	Pkg.
UPFAS236	50	75
UPFAS237	75	28
UPFAS238	110	20

### Lateral Floor Drain



Code	Size (mm)	Pkg.
UPFAS239	50	75
UPFAS240	75	32
UPFAS241	110	32

### Washer Floor Drain



Code	Size (mm)	Pkg.
UPFAS242	50	90
UPFAS243	75	60

### PVC Floor Drain



Code	Size (mm)	Pkg.
UPFAS244	50	140
UPFAS245	75	126
UPFAS246	110	98
UPFAS247	160	36

### Cleanout



Code	Size (mm)	Pkg.
UPFAS248	50	225
UPFAS249	75	72
UPFAS250	110	84
UPFAS251	160	36
UPFAS252	200	15
UPFAS253	250	8

### Square Rain Bucket



Code	Size (mm)	Pkg.
UPFAS254	75	30
UPFAS255	110	18
UPFAS256	160	8

### Ventilate Cap



Code	Size (mm)	Pkg.
UPFAS257	50	396
UPFAS258	75	108
UPFAS259	110	84
UPFAS260	160	36

### Square Water Seal Floor Drain



Code	Size (mm)	Pkg.
UPFAS261	50	60

### Check Hole Nut



Code	Size (mm)	Pkg.
UPFAS263	50	990
UPFAS264	75	372
UPFAS265	110	165
UPFAS266	160	80
UPFAS267	200	60

### Round Rain Bucket



Code	Size (mm)	Pkg.
UPFAS262	110	14

### Pipe Cap



Code	Size (mm)	Pkg.
UPFAS268	50	450
UPFAS269	75	126
UPFAS270	110	40
UPFAS271	160	36

### Inhalation valve



Code	Size (mm)	Pkg.
UPFAS272	110	30

### Energy Dissipation Vertical Pipe



Code	Size (mm)	Pkg.
UPFAS273	110	8
UPFAS274	160	3

# Technical Properties

## Technical Characteristics

Pipe Structure	Standard PVC-U Pipe
Diameters (mm)	d15, d20, d25, d32, d40, d50, d65, d75, d90, d110, d125, d160, d200, d250, d315
Pipe Classes	1. For Cold Water Supply at 60°C 2. For Drainage Water 3. For Portable Water
Pipe Length	Straight length - 3m, 4m, 5.8m, 6m
Joining Methods	Solvent Cement, Ring
Color	White & Grey
Chemical Resistance	Resistant to organic and inorganic chemical environments for pH values between 2 and 12
Installation Temperature	Minimum: +5°C Maximum: +40°C
Operating Temperature	Standard PVC-U Pipes: 0°C - +60°C
Standards	ASTM D-1785, AS/NZS 1477, ISO 4222-2, ISO 3633, AS/NZS 1260
Thermal Expansion Coefficient	0.06 mm/m°C to 0.08 mm/m°C
Thermal Conductivity Coefficient	0.14 to 0.16 W/m°C
Approvals and Certificates	Australia: <b>WATERMARK</b> , Europe: <b>CE</b> , India: <b>ISI</b> , <b>BIS</b>

## PHYSICAL PROPERTIES OF PVC MATERIALS

PROPERTY	UNITS	PVC	ASTM NO.
Specific Gravity	g/cc	1.41 - 1.46	D 792
Tensile Strength (73°F)	PSI	7,200	D 638
Modulus of Elasticity in Tension (73°F)	PSI	4,60,000	D 638
Flexural Strength (73°F)	PSI	13,200	D 790
Izod Impact (notched at 73°F)	ft lb/in.	0.65	D 256
Hardness (Durometer D)	----	80 ± 3	D 2240
Hardness (Rockwell R)	----	110 - 120	D 785
Compressive Strength (73°F)	PSI	9,000	D 695
Hydrostatic Design Stress	PSI	2,000	D 1598
Coefficient of Linear Expansion	in./in./°F	3.1 x 10 <sup>-5</sup>	D 696
Heat Deflection Temperature at 66 psi	°F	165	D 648
Coefficient of Thermal Conductivity	BTU/hr/sq. ft/°F/in.	1.2	C 177
Specific Heat	BTU/F/lb	0.25	D 2766
Limiting Oxygen Index	%	43	D 2863
Water Absorption (24 hrs at 73°F)	% weight gain	0.05	D 570
Cell Classification-Pipe	----	12454-B	D 1784
Cell Classification-Fittings	----	12454-B	D 1784

Above data is based upon information provided by the raw material manufacturers. It should be used only as a recommendation and not as a guarantee of performance.

## EXPANSION AND CONTRACTION OF PVC-U PIPE

PVC-U pipes, like other piping materials, undergoes length changes as a result of temperature variations above and below the installation temperature. They expand and contract 4.5 to 5 times more than steel or iron pipe. The extent of the expansion - contraction depends upon the coefficient of linear expansion of piping material. The length of pipe between directional changes, and the temperature differential.

The coefficient of thermal expansion (Y) for uPVC is  $3.1 \times 10^{-5}$  in./in./°F.

The amount of expansion and contraction can be calculated using the following formula:

$$\Delta L = Y (T1-T2) \times L1$$

$\Delta L$  = Dimensional change due to thermal expansion or contraction (Inch)

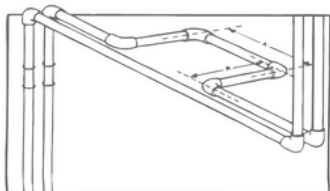
Y = Expansion coefficient (in./in./°F)

(T1-T2) = Temperature differential between the installation temperature and the maximum or minimum system temperature, whichever provides the greatest differential (°F).

L = Length of pipe run between changes in direction (in).

There are several ways to compensate for expansion and contraction. The most common method are:

1. Expansion loops which consist of pipe and 90° elbows.
2. Piston type expansion joints\*
3. Flexible bends\*
4. Bellows and rubber expansion joints\*



The length of leg "R" can be determined by using the following formula to ensure that it is long enough to absorb the expansion and contraction movement without damage. The length of leg "A" should be 1/2 the length of leg "R"

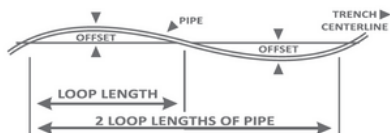
$$R = 1.44 D \Delta L$$

R = Expansion loop leg length (ft)

D = Nominal outside diameter of pipe (in.) (See table below.)

$\Delta L$  = Dimensional change due to thermal expansion or contraction (in.)

When installing the expansion loop, no rigid or restraining supports should be placed within the leg lengths of the loop. The loop should be installed as closely as possible to the mid-point between anchors. Piping support guides should restrict lateral movement and direct axial movement into the loop. Lastly, the pipe and fittings should be solvent cemented together, rather than using threaded connections. Compensation for expansion and contraction in underground application is normally achieved by snaking the pipe in the trench. Proper trenching and burial procedures must be followed to protect the piping system. The table below shows recommended offsets & loop lengths for piping upto 26 inches nominal sizes.



Max. Temp. Variation °F, Between Installation and Final Operation									
	10°	20°	30°	40°	50°	60°	70°	80°	100°
Loop Offset in Inches	Loop Length in Feet								
20	3.0	3.5	4.5	5.0	6.0	6.5	7.0	8.0	8.0
50	7.0	9.0	11.0	13.0	14.0	15.5	17.0	18.0	20.0
100	13.0	18.0	22.0	26.0	29.0	31.5	35.0	37.0	42.0

## SUPPORT SPACING FOR PVC-U PIPE

Adequate supports for any piping system is a matter of great importance. In practice, support spacings are a function of pipe size operating temperatures, the location of heavy valves or fittings and the mechanical properties of the pipe material. To ensure the satisfactory operation of a PVC-U piping system, the location and type of hangers should be carefully considered. Hangers should not compress, distort, cut or abrade the piping.

All piping should be supported with an approved hanger at intervals sufficiently close to maintain correct pipe alignment and to prevent sagging or reversal. Pipe should also be supported at all branch ends and at all changes of direction. Support trap arms as close as possible to the trap. In keeping with good plumbing practices support and brace all closet bends and fasten closet angles.

1. Concentrated loads should be supported directly so as to eliminate high stress concentrations. Should this be impractical then the pipe must be supported immediately adjacent to the load.
2. In systems where large fluctuations in temperature occur, allowances must be made for expansion and contraction of the piping system. Since changes in direction in the system are usually sufficient to allow for expansion and contraction hangers must be placed so as not to restrict this movement.
3. Since plastic pipe expands or contracts approximately five times greater than those of steel, hangers should not restrict this movement.
4. Hangers should provide as much bearing surface as possible. To prevent damage to the pipe, file smooth any sharp edges or burrs on the hangers or supports.
5. Support spacing for horizontal piping systems is determined by the maximum operating temperature the system will encounter. The piping should be supported on uniform centers with supports that do not restrict the axial movement.
6. For vertical lines, it is recommended that an engineer should design the vertical supports according to the vertical load involved.

## TESTING PRESSURE SYSTEM

- Prior to testing, safety precautions should be instituted to protect personnel and property in case of test failure.
- Conduct pressure testing with water. DO NOT USE AIR OR OTHER GASES for pressure testing.
- The piping system should be adequately anchored to limit movement. Water under pressure exerts thrust forces in piping systems. Thrust blocking should be provided at changes of direction, change in size and at dead ends.
- Please refer tables given for initial set & cure times before pressure testing.
- The piping systems should be slowly filled with water, taking care to prevent surge and air entrapment. The flow velocity should not exceed 5 feet per second.
- All trapped air must be slowly released. Vents must be provided at all high points of the piping system. All valves and air relief mechanisms should be opened so that the air can be vented while the system is extremely dangerous and it must be slowly and completely vented prior to testing. For sizes 4" & above, recommends to use automatic air relief valves at every 300-400mt. distance & at furthest & highest points of pipeline to avoid any damage to the piping system.

The piping system can be pressurized to 125% of its designed working pressure. However care must be taken to ensure the pressure does not exceed the working pressure of the lowest rated component in the system (valves, unions, flanges, threaded parts etc.)

- The pressure test should not exceed one hour. Any leaking joints or pipe must be cut out and replaced and the line recharged and retested using the same procedure.

## UNDERGROUND INSTALLATION

PVC-U pipes and fittings can be installed underground. Since these piping systems are flexible systems, proper attention should be given to burial conditions. The stiffness of the piping system is affected by sidewall support, soil compaction, and the condition of the trench. Trench bottoms should be smooth and regular in either undisturbed soil or a layer of compacted backfill. Pipe must lie evenly on this surface throughout the entire length of its barrel. Excavation, bedding and backfill should be in accordance with the provision of the local Plumbing Code having jurisdiction.

### TRENCHING

The following trenching and burial procedures should be used to protect the piping system.

1. The trench should be excavated to ensure the sides will be stable under all working conditions. The trench should be wide enough to provide adequate room for the following:
  - i. Jointing the pipe in the trench.
  - ii. Snaking the pipe from side or side to compensate for expansion and contraction.
  - iii. Filling and compacting the side fills.

The space between the pipe and trench wall must be wider than the compaction equipment used in the compaction of the backfill. Minimum width shall not be less than the greater of either the pipe outside diameter plus 16 inches or the pipe outside diameter times 1.25 plus 12 inches. Trench width may be different if approved by the design engineer.

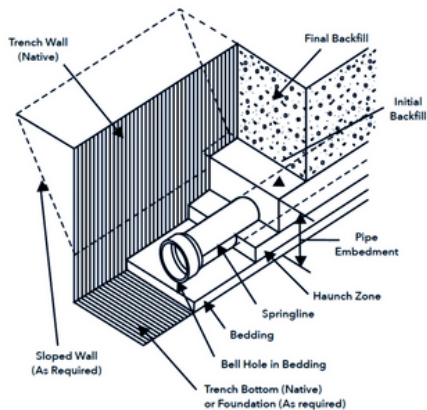
2. The trench bottom should be smooth, free of rocks and debris, continuous, and provide uniform support. If ledge rock, hardpan or large boulders are encountered, the trench bottom should be padded with bedding of compacted granular material to a thickness of at least 4 inches. Foundation bedding should be installed as required by the engineer.

3. Trench depth is determined by the pipe's service requirements. Plastic pipe should always be installed at least below the frost level. The minimum cover for lines subject to heavy overhead traffic is 24 inches.

4. A smooth, trench bottom is necessary to support the pipe over its entire length on firm stable material. Blocking should be used where pipe grade or to intermittently support pipe over low sections in the trench.

### BEDDING AND BACKFILLING

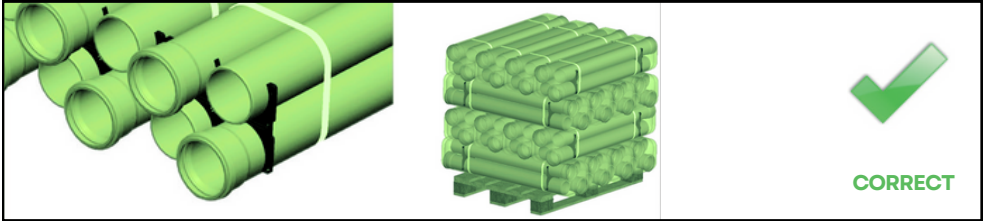
1. Even though sub-soil conditions vary widely from place to place, the pipe backfill should be stable and provide protection for the pipe.
2. The pipe should be surrounded with a granular material which is easily worked around the sides of the pipe. Backfilling should be performed in layer of 6 inch with each layer being sufficiently compacted to 85% to 95% compaction.
3. A mechanical tamper is recommended for compacting sand and gravel backfill which contain a significant proportion of fine grained material, such as silt and clay. If a tamper is not available, compacting should be done by hand.
4. The trench should be completely filled. The back fill should be placed and spread in fairly uniform layers to prevent any unfilled spaces or voids. Large rocks, stones, frozen clods, or other large debris should be removed. Heavy tampers or rolling equipment should only be used to consolidate only the final backfill.



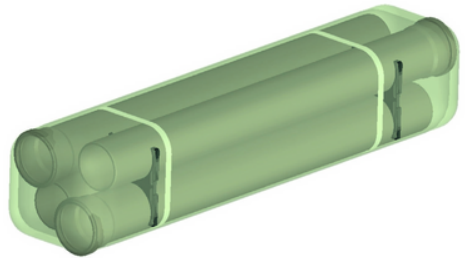
# Packaging, Storage and Transportation

## Packaging

Our pipes and fittings are packed as ready for transport in a customer-friendly way. Packing ensures safety, efficient storage and easy transport.



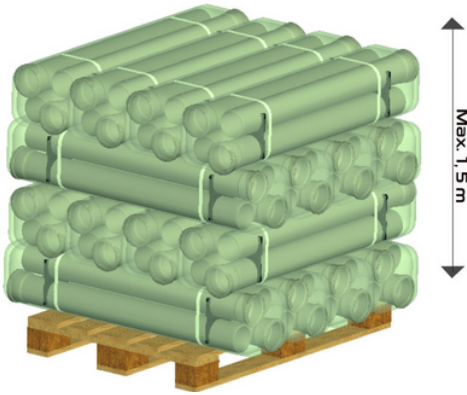
Short parts with the length of 150, 250 and 500 mm are packed in carton boxes like connection parts.



Pipes are packed by plastic clamps to hold them together. Stretch film is applied to protect pipes from pipes dust and stains.



## Storage

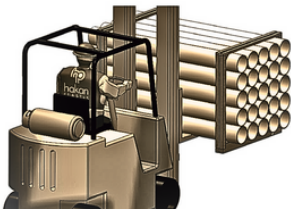
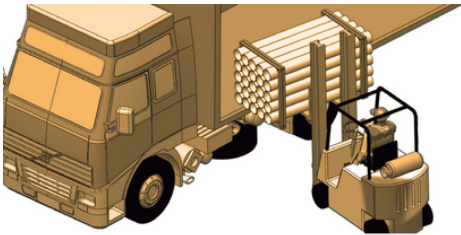


Method of storage should not cause any outflow and should not damage the pipes. As long as they are stored properly, no permanent deformations or damages will occur on the pipes and fittings. Pipes should not be stacked above 1,5 m. Pipes should be safe against sliding.



Pipes and fittings packed in carton boxes should be protected against moisture. Carton boxes should be sealed and stored in a dry area.

## Transportation



Pipes should be carefully transported to prevent any damages. Avoid sudden and hard pressures on pipes and fittings that might cause freezing in cold weather conditions. Ensure that pipes are not slid and dropped on the floor. Loading and unloading and packing of pipes in a block should be carried out by means of forklifts having flat threads and extensions.

Disclaimer: The information and technical data (altogether "Data") herein are not binding. The Data neither constitutes any expressed, implied or warranted characteristics, nor guaranteed properties or a guaranteed durability. All Data is subject to modification. The General Terms and Conditions of Sale of Edoburg Piping Systems apply.

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