



MODERN PLASTIC INDUSTRY L.L.C.



UPVC PRESSURE PIPES & FITTINGS



Reliability, Quality and Value



P R O F I L E

Introduction

Modern Plastic Industry is a part of AL SHIRAWI GROUP OF COMPANIES which is one of the largest and most diversified business conglomerates in the Arabian Gulf. From its inception in 1971 as a trading and contracting company, the Group has broadened its scope to encompass a cross section of products, services and industries ranging from printing, heavy fabrication, engineering, electromechanical, electronics, trucks and logistics.

Established in 1987, Modern Plastic Industry (MPI) has pioneered the manufacturing of UPVC pressure pipe fittings in the UAE. Today Modern Plastic has a wide range of SWR drainage, high pressure UPVC, CPVC, PP Compression Fittings and Pipes.

MPI products have been used extensively in the irrigation, construction, plumbing and landscaping industry and are playing a significant role in the development of the Gulf region and Middle East.

Subsequently the company started manufacturing Pressure Pipes and Fittings under the "Flowtech", & "Atlas" brands.

State-of-the-art facility

MPI UPVC Pressure Pipes and Fittings systems are manufactured in a state-of-the-art facility at Dubai Investment Park with state-of-the-art Microprocessor based Injection Moulding Machines and High Quality Precision Moulds for Fittings and High Quality Extrusion Machines for Pipes.

Technology is the backbone of ongoing development and the right design selection headed by a team of experienced and well-trained professionals complements the development process.

MPI has established an in-house tool room with the latest CNC machines and EDM machines, which are used to manufacture moulds as per the needs of the market.

Quality Control

As the UPVC High Pressure Pipe Fitting systems are specially designed to meet the harsh climate conditions of the Gulf region, MPI places emphasis on Quality, Reliability and Economy. Strict in-house Quality Control is backed by testing through independent laboratories of international repute to certify the quality of pipes and fittings.

MPI places great emphasis on customer satisfaction through quality products. The company's operational excellence is evident through its established Quality Management System, which complies with the ISO 9001-2000 standard, certified by British Standard Institute (BSI) UK. Also the company's product have been awarded the prestigious Kitemark certification of BSI, UK.





Kitemark

Modern Plastic is one of the largest companies in the Middle East to manufacture a wide range of UPVC High Pressure Pipes and Fittings Kitemark certified by BSI, UK.

In-House Quality Control

MPI's Products are tested to maintain the quality level in the permissible standard tolerances. We perform the tests as per relevant international standards (BS, DIN, ISO) and acceptance sampling procedures for production quality control and lot testing are done during all production operations.

The following quality control tests are performed in our in-house lab.

- Physical Test
- Dimensional Check
- Pressure Test
- Impact Test
- Heat Reversion test / Effect on Heating Test
- Dichloromethane test
- Vicat Softening Temperature Test
- Opacity Test

Apart from this, our products are being tested / assessed by BSI / other certification bodies on a regular basis.

A Complete Solution

With the growing demand to cater to the construction industry MPI has now introduced a complete range of UPVC Pressure Pipe sizes from 1/2" to 6" conforming to British Standards BSEN 1452-2 which supercedes BS 3505 and sizes 20mm to 160mm conforming to DIN Standards DIN 8061 / 8062.

MPI's products are manufactured par excellence to the international standards and ensure a complete solution of "Piping System" for plumbing applications.

Modern Plastic is one of the largest companies in the Middle East to manufacture a wide range of UPVC Pressure Fittings certified by UK BSI Kitemark standards.

Global Presence

MPI has been the leader in the Gulf market mainly because it can offer the widest range of UPVC Pressure Pipes and Fittings which are specially designed to meet theharsh climatic conditions with more emphasis of Quality, Reliability and Economy. MPI is managed by a team of experienced and well trained professionals, and markets its range of products in the AGCC region, the Middle East, Africa, Europe and the Asian subcontinent.



TECHNICAL SPECIFICATION

UPVC PRESSURE PIPES AND FITTINGS

Description

"ATLAS" Pipe Fittings are the "UPVC (Unplasticized Polyvinyl Chloride) Pressure Pipes and Fittings system" for cold water distribution, precisely designed for cold solvent welding as well as rubber ring jointing. The complete range can also be offered in CPVC (Chlorinated Polyvinyl Chloride) material for hot water distribution on special demand.

Brand & Marking

"ATLAS" is a registered brand name of "Modern Plastic Industry LLC" within United Arab Emirates for all PVC Fittings manufactured by MPI. All fittings are marked with the brand name, size, category and standard.

Standards

UPVC Pressure Pipes & Fittings are manufactured as per the following standards.

(i) Inch series (Imperial) :

- Pressure Pipes : BS EN 1452-2 : 2000
This standard supercedes BS 3505 : 1986
- Pressure Fittings : BS EN 1452-3 : 2000
This standard supercedes BS 4346-3 : 1982

(ii) Millimeter series (mm) :

- Pressure Pipes : DIN 8061 / 8062
- Pressure Fittings : DIN 8063
- Threaded joints are as per BS 21 & ISO 7 – 1 standards

Working Pressure

All Pipe Fittings depending upon the sizes are made for permissible continuous working pressure at 20°C (Based on water quality) as below :

Inch system Pipe Fittings : Maximum upto 15 Bar

Millimeter system Pipe Fittings : Maximum upto 16 Bar



Types & Ranges

Pressure Fittings :

- Total 20 types of pressure fittings are available as below :
- Elbow 90°, Female Elbow 90°, Elbow 45°, Reducing Female Elbow 90°, Tee, Female Tee & "Y"
- Reducing Tee, Reducing Female Tee, End Cap Plain, Threaded Cap, Male Thread Adaptor
Female Socket Adaptor, Female Slip Adaptor, Socket, Reducer Bushes, Female Reducer Bushes
Hex Nipples, Flanges, Unions

Pressure Pipes :

- UPVC Pressure Pipes & Fittings are available in inch sizes from 1/2" to 6" and in Millimeter sizes from 20mm to 160mm.

Raw Material

The raw material used is 100 % UPVC virgin material with necessary additives / chemicals needed to facilitate the manufacturing process.

Appearance

The internal and external surface of the pipes are smooth, clean and free from surface defects.

Colour

The colour of the Pipe Fittings are Grey throughout the wall.

Effective Length of Pressure Pipes

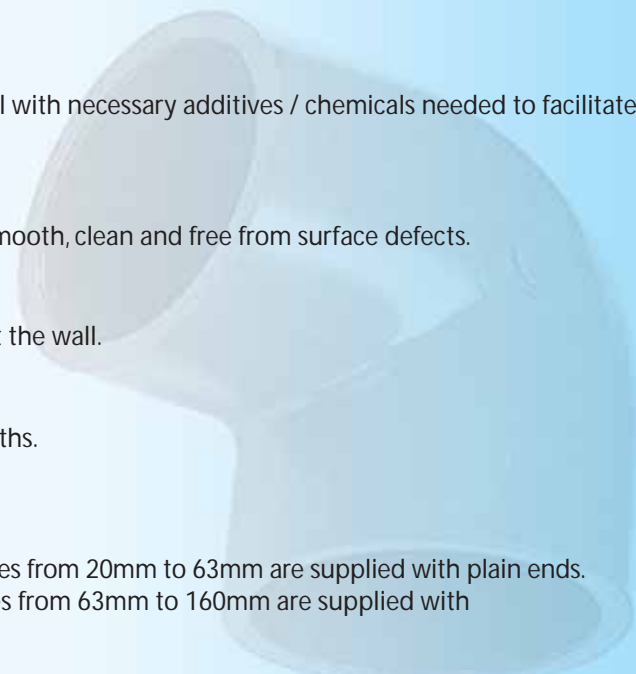
All pipes are manufactured in 4m and 6 / 5.8m lengths.

Pressure Pipe Sockets

The Pipes are supplied as follows.

The inch size pipes from 1/2" to 2" and "mm" size pipes from 20mm to 63mm are supplied with plain ends.

The inch size pipes from 2" to 6" and "mm" size pipes from 63mm to 160mm are supplied with Solvent cement socket or rubber ring socket.



General Physical Properties of UPVC

Sr. No	Characteristics	Value
1	Specific Gravity	1.41
2	Thermal Conductivity	160 w/m° C
3	Specific Heat	1040 J / Kg/°C
4	Flammability	UPVC is self – extinguishing and will not support combustion
5	Tensile Strength	> 45 MN/sq cm at 20° C
6	Vicat Softening Temperature	>80°C
7	Poissons Ratio	1:3



Mechanical and Physical Properties : UPVC Pipes

Sr. No	Characteristics	Value	Value
1	Impact Strength	TIR <10% at 0° C	EN 744
2	Vicat Softening Temperature	>80°C	EN 727
3	Longitudinal Reversion	<5 % at 150° C	EN 743 (Method B ; Air)
4	Resistance to Dichloromethane Test	No attack at any part of the surface of pipe at 15°C	EN 580
5	Opacity	Shall not transmit >0.2% of visible light	EN 578
6	Resistance to Internal Pressure	No failure during the test period of 1 hr at 20°C ; 42 Mpa	EN 921

Mechanical and Physical Properties : UPVC Fittings

Sr. No	Characteristics	Value	Value
1	Vicat Softening Temperature	>74°C	EN 727
2	Effects on Heating	Depth of crack / delamination, blisters or signs of weld line splitting < 30% of wall thickness around injection point	EN 743 (Method B ; Air)
3	Opacity	Shall not transmit >0.2% of visible light	EN 578
4	Resistance to Internal Pressure of 1 hr at 20°C ; 3.36 x PN	No failure during the test period	ISO / DIS 12092

Chemical Resistance

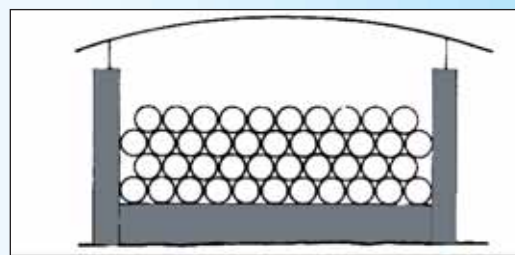
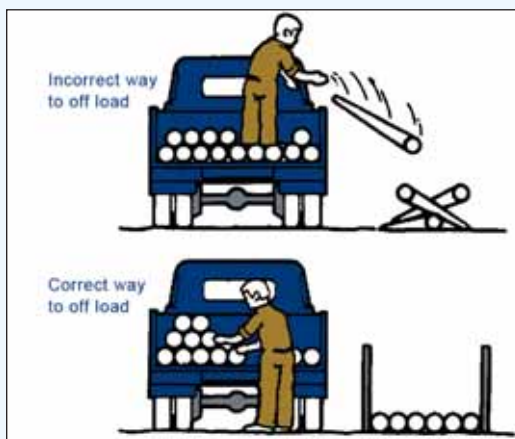
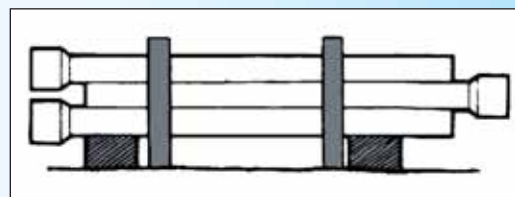
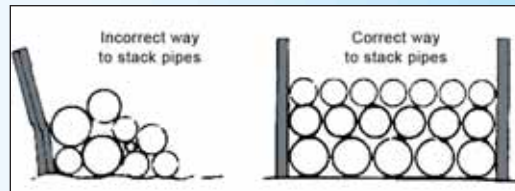
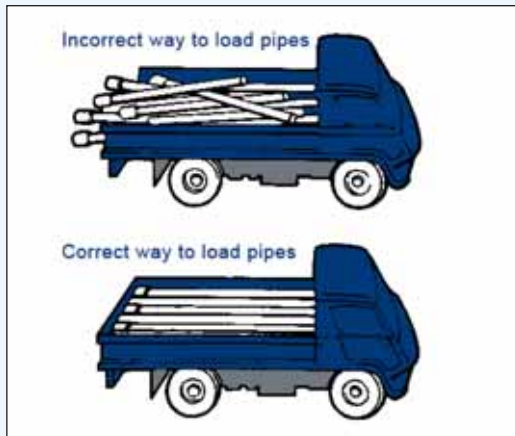
UPVC Pressure Pipe systems are suitable to be used with a number of acids, alkalies, salts and solvents that can be mixed with water.

UPVC Pressure Pipe systems are not resistant to aromatic and chlorinated hydrocarbons.

More detailed and specific information is available in the British Standard code of practice for plastic pipe work CP 312-3 : 1973



ON SITE STORAGE AND HANDLING



Storage

- The pipes should be kept on a flat surface or on level ground free from stones and sharp objects.
- The maximum stack should be 7 layers high under normal conditions and 6 layers high in hot conditions.
- Ideally a stack should contain pipes of the same diameter. If this is not possible nesting of the smaller pipes inside the larger pipes may be done. The larger diameter pipes should always be kept at the bottom of the stack.
- Direct exposure to sunlight (UV rays) can affect the pipes and fittings, causing decolouration and deterioration in the seal rings.
- It is recommended that the pipes should not be exposed to direct sunlight and if kept in open for longer periods of direct sunlight, it should be covered by opaque sheets.
- While storing socketed pipes, it is recommended that alternate layers should have the sockets in the opposite direction.



Handling

- Reasonable care should be taken while handling of pipes. During unloading from vehicles, pipes should not be dropped/mishandled from the vehicle.
- Pipes should never be dragged along hard surfaces. In case of mechanical lifting, avoid using metal chains and hooks in direct contact with the pipes. It is recommended to provide protected slings and padded supports.

Transportation

- Generally UPVC pipes are supplied in prepacked bundles of standard quantity.
- In case loose pipes being transported, the larger diameter and heavier pipes should be placed at the bottom of the load and smaller diameter pipes on top.
- The pipes should be loaded in such a way that the overhang should be less than a meter.



PVC PIPING SYSTEM: Brief Technical Overview

Temperature / Pressure Relationship

The service life of a pipe system is influenced by the relationship between the working temperature and the working pressure. Illustration 'A' below plots, the recommended maximum working pressures in relation to working temperatures, based upon a service life expectancy of 50 years for 15 bar fittings.

It is appreciated, in the context of modern industrial pipe system, reference to service life of 50 years, or even 20 years may be largely irrelevant. Such a time scale is, however, used only as a basis of material provided maximum combinations of pressure and temperature are not exceeded.

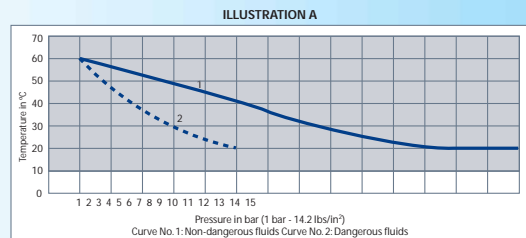
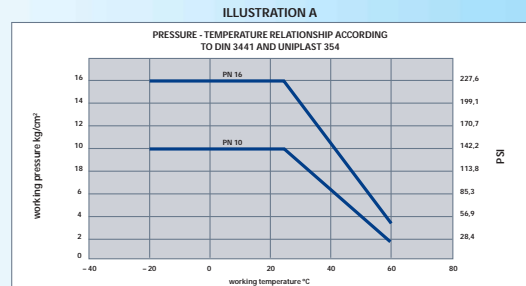


Illustration A below plot, the recommended maximum working pressures in relation to working temperatures, based upon a service life expectancy of 50 years for metric size fittings for 16 & 10 bar fittings.



THE ABOVE DATA HAS BEEN TAKEN FROM BURST & AGEING TESTS ON A RANDOM SAMPLING BASIS CARRIED OUT UNDER RELEVANT TEST CRITERIONS

Determining the Pressure Rating of a System

In determining the maximum working pressure of system as whole, it is essential to take into consideration those components in the system which have the lowest pressure rating. PVC pipe, for example, is available with pressure ratings ranging from 6 bar (Class B) up to 15 bar (Class E), and it is frequently the pressure class of the pipe that will determine the performance capability of the whole system.

Pressure ratings of pipe fittings and values are always quoted with and subjected to a given temperature, usually 20° C. They can be used at higher pressures, but it is a fundamental principle in plastics pipe work that if either the temperature or the pressure is increased then the other must be reduced.

The table below shows the percentage of system's overall pressure rating recommended for various working temperature over 20° C with a fluctuation not exceeding 5° C. Where pipe work is conveying highly corrosive or dangerous liquids, or is liable to mechanical abuse, it is recommended that the pressure rating be regarded as that applicable to the next lower pressure class.

Temperature		Percentage of Pressure Rating
deg. C	deg. F	
20	68	100
30	86	90
35	95	80
40	104	70
45	113	60
50	122	45
55	131	30
60	140	15

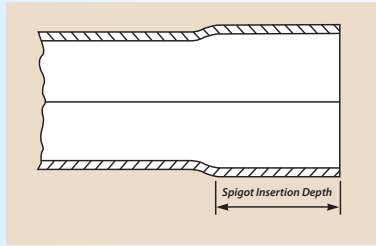


PIPE JOINTING TECHNIQUES

Solvent cement Jointing



1 The socket and spigot to be jointed shall be thoroughly seen for any damage. Proper attention shall be given to spigot chamfer and socket.



2 The spigot insertion depth shall be measured as the depth from the mouth to the shoulder of the socket. The spigot shall be marked accordingly with marker. (REFER FIG 1 & 3)



3 The mating area of spigot and socket shall be thoroughly cleaned. (REFER FIG 2 & 3)



4 Lightly roughen the mating surface of the spigot and socket using clean emery cloth or medium glass paper. (REFER FIG 3)



5 Thoroughly clean again the mating surface and ensure that all mating surfaces are clean and completely dry. (REFER FIG 4)



6 Apply uniform coat of solvent cement to the spigot and socket mating surfaces. The cement shall be applied in a lengthwise direction and not with a circular motion. (REFER FIG 5)



7 Immediately following cement application ensure that the pipe is slowly anchored and push the spigot fully in the socket without turning the pipe. The spigot shall be inserted with a steady, continuous motion and held in place for 20 seconds. Remove the excess cement from around the mouth of the socket. (REFER FIG 6 & 7)



8 Leave the joint undisturbed for five minutes then handle with reasonable care. (REFER FIG 8)

Notes for Solvent Cement :

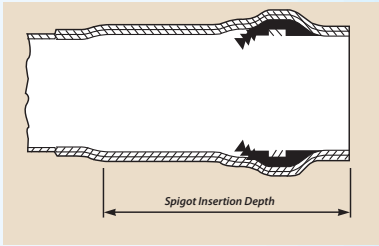
- 1) Solvent cement is flammable and shall be used in well ventilated conditions.
- 2) The solvent in the cement evaporates quickly, so it is recommended to close the tin/container immediately after use.
- 3) Avoid cleaning fluid be mixed with solvent cement.
- 4) Don't use brush on which solvent cement has previously hardened.
- 5) Solvent cement spilled on the pipe surface should be removed immediately.



Rubber Ring Jointing



1 The socket and spigot to be joined shall be thoroughly seen for any damage. Proper attention shall be given to spigot chamfer and the sealing ring. The chamfered spigot shall be clean and free from burrs. The sealing ring shall be correctly seated in the socket groove.



2 The spigot insertion depth shall be measured as the depth from the mouth to the shoulder of the socket. The spigot shall be marked accordingly with marker. If an allowance for expansion is required, this should be deducted from the spigot insertion depth. (REFER FIG 2)



3 The spigot and socket should be thoroughly cleaned. Any grease, dirt and other foreign matter shall be removed from the sealing areas. (REFER FIG 3)



4 The spigot end and sealing ring shall be thoroughly lubricated with the suitable lubricant. The spigot shall be lubricated to the full insertion depth and around its complete circumference including chamfer area. (REFER FIG 4)



5 Immediately after lubrication, the spigot shall be brought into contact with the socket. The spigot shall be inserted into the socket until resistance from the inner sealing section is felt. Correct alignment at this stage is essential to ensure that the rubber sealing ring is not torn or pinched. (REFER FIG 5)



DUCT PIPE BS 3506 STANDARD (INCH SIZE)

Size	Mean Outside Dia		Wall thickness		Wall thickness		Wall thickness	
			PN - 12 (CLASS-D)		PN - 9 (CLASS-C)		PN - 6 (CLASS-B)	
	Min	Max	Min	Max	Min	Max	Min	Max
2"	60.2	60.5	3.1	3.7	2.5	3	-	-
2 1/2"	75	75.3	3.9	4.5	3	3.5	-	-
3"	88.7	89.1	4.6	5.3	3.5	4.1	2.9	3.4
4"	114.1	114.5	6	6.9	4.5	5.2	3.4	4
6"	168	168.5	8.8	10.2	6.6	7.6	4.5	5.2

Technical Information - DUCT Pipes are manufactured as per BS 3506 standard.
 - The standard length shall be 6m with socket or as per customer requirement.
 - The colour of the pipe shall be Grey / Black or as per customer requirement.

General Properties Specific Gravity : 1.41
 Vicat Softening Temperature : Min 80°C
 Tensile strength : > 45 MN/ sq cm at 20°C
 Flammability : UPVC is self extinguishing and will not support combustion
 Specific heat : 1040 J/ Kg / °C

Applications Used in Telephone Cables, High voltage underground cables, street and housing power supplies, factory and industrial applications, sheathing of water and gas services.

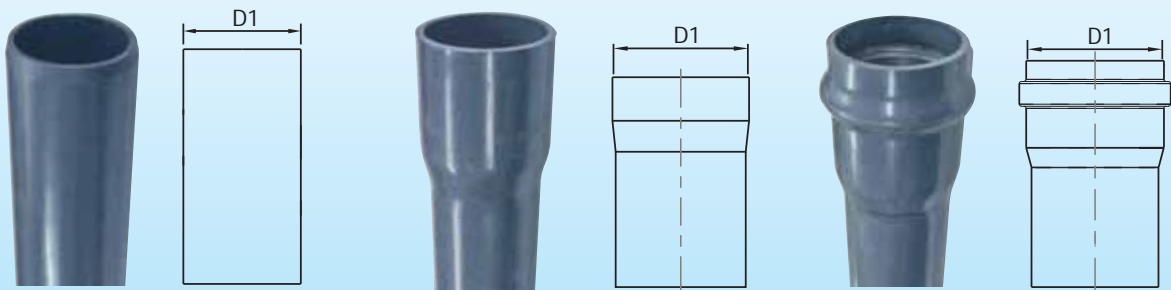
UPVC INCH SIZE PRESSURE PIPE AND FITTINGS

BS EN 1452-2 ; PN-15(CLASS-E)

UPVC Pressure Pipes are manufactured as per the following dimensions :

Inch size Pressure Pipes : BS EN 1452-2

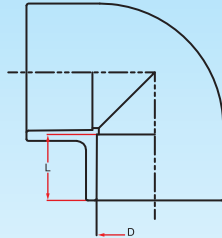
Size	Mean Outside Dia		Wall thickness		Wall thickness		Wall thickness	
			PN - 15 (CLASS-E)		PN - 12 (CLASS-D)		PN - 9 (CLASS-C)	
	Min	Max	Min	Max	Min	Max	Min	Max
1/2"	21.2	21.5	1.7	2.1	-	-	-	-
3/4"	26.6	26.9	1.9	2.5	-	-	-	-
1"	33.4	33.7	2.2	2.8	-	-	-	-
1 1/4"	42.1	42.4	2.7	3.3	2.2	2.7	-	-
1 1/2"	48.1	48.4	3.1	3.7	2.5	3.0	-	-
2"	60.2	60.5	3.9	4.5	3.1	3.7	2.5	3.0
3"	88.7	89.1	5.7	6.6	4.6	5.3	3.5	4.1
4"	114.1	114.5	7.3	8.4	6.0	6.9	4.5	5.2
6"	168	168.5	10.8	12.5	8.8	10.2	6.6	7.6





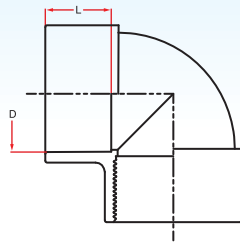
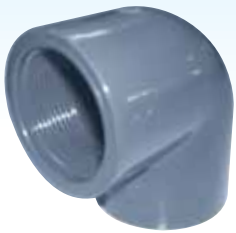
UPVC INCH SIZE PRESSURE PIPES AND FITTINGS

(Supercedes BS EN 1452-3; CLASS-E; PN-15)



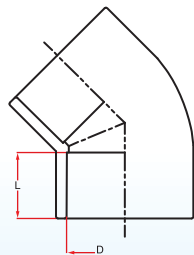
1) Elbow 90° Plain

Size	D	L	PN
1/2"	21.3	16.5	15
3/4"	26.7	19.5	15
1"	33.5	22.5	15
1 1/4"	42.2	27.0	15
1 1/2"	48.2	30.0	15
2"	60.3	36.0	15
2 1/2"	75.1	44.0	15
3"	88.8	50.5	15
4"	114.2	63.0	15
6"	168.2	90.0	15



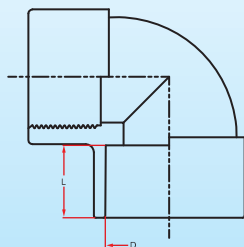
2) Female Elbow 90° One end plain/other end BSP female thread

Size	D	L	PN
1/2"	21.3	16.5	15
3/4"	26.7	19.5	15
1"	33.5	22.5	15
1 1/4"	42.2	27.0	15
1 1/2"	48.2	30.0	15
2"	60.3	36.0	15
2 1/2"	75.1	44.0	15
3"	88.8	50.5	15



3) Elbow 45° Plain

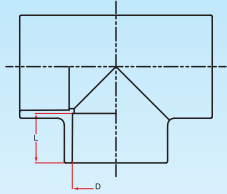
Size	D	L	PN
1/2"	21.3	16.5	15
3/4"	26.7	19.5	15
1"	33.5	22.5	15
1 1/4"	42.2	27.0	15
1 1/2"	48.2	30.0	15
2"	60.3	36.0	15
2 1/2"	75.1	44.0	15
3"	88.8	50.5	15
4"	114.2	63.0	15
6"	168.2	90.0	15



4) Reducing Female Elbow 90° One end plain/other end BSP female thread

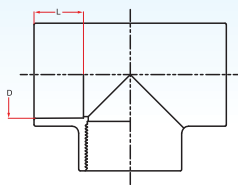
Size	D	L	PN
1 x 1/2"	33.5	22.5	15
1 x 3/4"	33.5	22.5	15





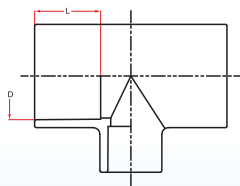
5) Tee 90° Plain

Size	D	L	PN
1/2"	21.3	16.5	15
3/4"	26.7	19.5	15
1"	33.5	22.5	15
1 1/4"	42.2	27.0	15
1 1/2"	48.2	30.0	15
2"	60.3	36.0	15
2 1/2"	75.1	44.0	15
3"	88.8	50.5	15
4"	114.2	63.0	15
6"	168.2	90.0	15



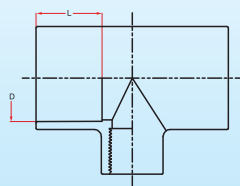
6) Female Tee : Two end plain/Center end BSP female thread

Size	D	L	PN
1/2"	21.3	16.5	15
3/4"	26.7	19.5	15
1"	33.5	22.5	15
1 1/4"	42.2	27.0	15
1 1/2"	48.2	30.0	15
2"	60.3	36.0	15
2 1/2"	75.1	44.0	15
3"	88.8	50.5	15



7) Reducing Tee

Size	D	L	PN
3/4 x 1/2"	21.3	19.5	15
1 x 1/2"	33.5	22.5	15
1 x 3/4"	33.5	22.5	15
1 1/2 x 1/2"	48.2	30.0	15
1 1/2 x 3/4"	48.2	30.0	15
1 1/2 x 1"	48.2	30.0	15
2 x 1/2"	60.3	36.0	15
2 x 3/4"	60.3	36.0	15
2 x 1"	60.3	36.0	15
2 x 1 1/2"	60.3	36.0	15
3 x 2"	88.8	50.5	15
4 x 3"	114.2	63.0	15



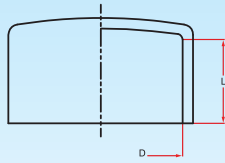
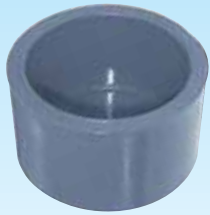
8) Reducing Female Tee: Two end plain/Center end BSP female thread

Size	D	L	PN
3/4 x 1/2"	21.3	19.5	15
1 x 1/2"	33.5	22.5	15
1 x 3/4"	33.5	22.5	15
1 1/2 x 1/2"	48.2	30.0	15
1 1/2 x 3/4"	48.2	30.0	15
1 1/2 x 1"	48.2	30.0	15
2 x 1/2"	60.3	36.0	15
2 x 3/4"	60.3	36.0	15
2 x 1"	60.3	36.0	15



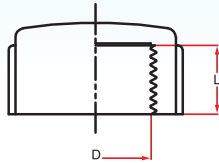
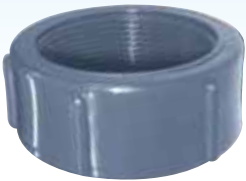
UPVC INCH SIZE PRESSURE PIPES AND FITTINGS

(Supercedes BS EN 1452-3; CLASS-E; PN-15)



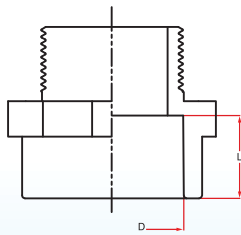
9) End Cap Plain

Size	D	L	PN
1/2"	21.3	16.5	15
3/4"	26.7	19.5	15
1"	33.5	22.5	15
1 1/4"	42.2	27.0	15
1 1/2"	48.2	30.0	15
2"	60.3	36.0	15
2 1/2"	75.1	44.0	15
3"	88.8	50.5	15
4"	114.2	63.0	15
6"	168.2	90.0	15



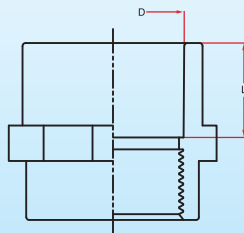
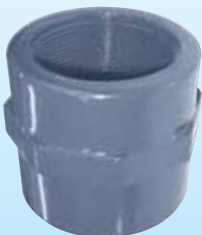
10) Thread Cap ; BSP female thread

Size	D	PN
1/2"	21.3	15
3/4"	26.7	15
1"	33.5	15
1 1/4"	42.2	15
1 1/2"	48.2	15
2"	60.3	15
2 1/2"	75.1	15
3"	88.8	15



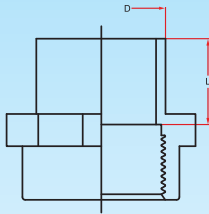
11) Male Thread Adaptor/Nipple Socket; BSP male thread/plain socket

Size	D	L	PN
1/2"	21.3	16.5	15
3/4"	26.7	19.5	15
1"	33.5	22.5	15
1 1/4"	42.2	27.0	15
1 1/2"	48.2	30.0	15
2"	60.3	36.0	15
2 1/2"	75.1	44.0	15
3"	88.8	50.5	15
4"	114.2	63.0	15



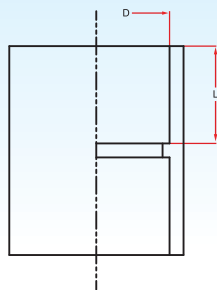
12) Female Socket Adaptor ; BSP female thread/plain socket

Size	D	L	PN
1/2"	21.3	16.5	15
3/4"	26.7	19.5	15
1"	33.5	22.5	15
1 1/4"	42.2	27.0	15
1 1/2"	48.2	30.0	15
2"	60.3	36.0	15
2 1/2"	75.1	44.0	15
3"	88.8	50.5	15
4"	114.2	63.0	15



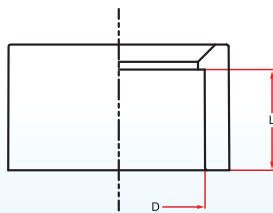
13) Female Slip Adaptor ; BSP female thread/male plain socket

Size	D	L	PN
1/2"	21.3	16.5	15
3/4"	26.7	19.5	15
1"	33.5	22.5	15
1 1/4"	42.2	27.0	15
1 1/2"	48.2	30.0	15
2"	60.3	36.0	15



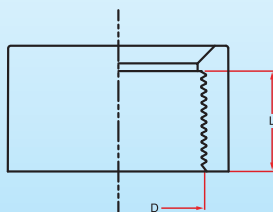
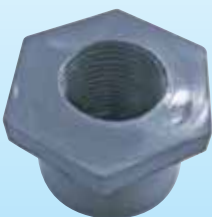
14) Socket

Size	D	L	PN
1/2"	21.3	16.5	15
3/4"	26.7	19.5	15
1"	33.5	22.5	15
1 1/4"	42.2	27.0	15
1 1/2"	48.2	30.0	15
2"	60.3	36.0	15
2 1/2"	75.1	44.0	15
3"	88.8	50.5	15
4"	114.2	63.0	15
6"	168.2	90.0	15



15) Reducer Bush

Size	D	L	PN
3/4 x 1/2"	21.3	19.5	15
1 x 1/2"	33.5	22.5	15
1 x 3/4"	33.5	22.5	15
1 1/4 x 1/2"	42.2	27.0	15
1 1/4 x 3/4"	42.2	27.0	15
1 1/4 x 1"	42.2	27.0	15
1 1/2 x 1/2"	48.2	30.0	15
1 1/2 x 3/4"	48.2	30.0	15
1 1/2 x 1"	48.2	30.0	15
2 x 1/2"	60.3	36.0	15
2 x 3/4"	60.3	36.0	15
2 x 1"	60.3	36.0	15
2 x 1 1/2"	60.3	36.0	15
2 1/2 x 1 1/2"	75.1	44.0	15
2 1/2 x 2"	75.1	44.0	15
3 x 1 1/2"	88.8	50.5	15
3 x 2"	88.8	50.5	15
3 x 2 1/2"	88.8	50.5	15
4 x 3"	114.2	63.0	15
4 x 2"	114.2	63.0	15
6 x 3"	168.2	90.0	15
6 x 4"	168.2	90.0	15



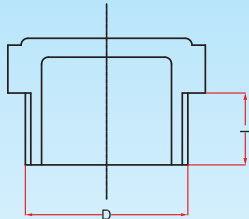
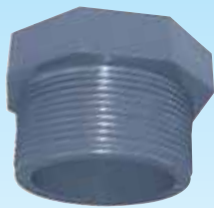
16) Female Reducer Bush ; BSP female thread

Size	D	L	PN
3/4 x 1/2"	21.3	19.5	15
1 x 1/2"	33.5	22.5	15
1 x 3/4"	33.5	22.5	15



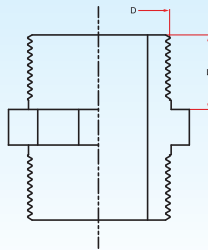
UPVC INCH SIZE PRESSURE PIPES AND FITTINGS

(Supercedes BS EN 1452-3; CLASS-E; PN-15)



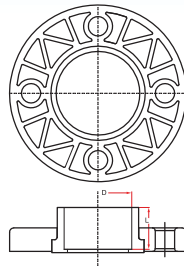
17) Male Plug

Size	L (mm)	PN
1/2"	11.4	15
3/4"	12.7	15
1"	14.5	15
1 1/4"	16.8	15
1 1/2"	16.8	15
2"	21.1	15



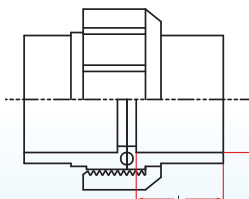
18) Hex Nipple

Size	L (mm)	PN
1/2"	11.4	15
3/4"	12.7	15
1"	14.5	15
1 1/4"	16.8	15
1 1/2"	16.8	15
2"	21.1	15



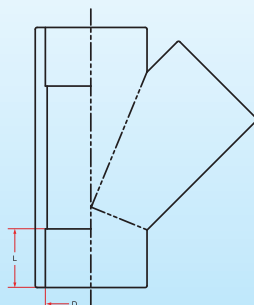
19) Flanges with stub

Size	D	L	PN
1 1/2"	48.2	30.0	15
2"	60.3	36.0	15
2 1/2"	75.1	44.0	15
3"	88.8	50.5	15
4"	114.2	63.0	15
6"	168.2	40.0	15



20) Unions socket type

Size	D	L	PN
1/2"	21.3	16.5	15
3/4"	26.7	19.5	15
1"	33.5	22.5	15
1 1/2"	48.2	30.0	15
2"	60.3	36.0	15
2 1/2"	75.1	44.0	15
3"	88.8	50.5	15



21) WYE 45°

Size	D	L	PN
1/2"	21.3	16.5	15
3/4"	26.7	19.5	15
1"	33.5	22.5	15
1 1/4"	42.2	27.0	15
1 1/2"	48.2	30.0	15
2"	60.3	36.0	15
2 1/2"	75.1	44.0	15
3"	88.8	50.5	15
4"	114.2	63.0	15
6"	168.2	90.0	15



DUCT PIPE AS PER DIN 8062 STANDARD (MILLIMETER SIZE)

Size	Mean Outside Dia		Wall thickness		Wall thickness		Wall thickness	
			PN - 10 (CLASS-10)		PN - 6 (CLASS-6)		PN - 4 (CLASS-4)	
	Min	Max	Min	Max	Min	Max	Min	Max
110 mm	110	110.3	5.3	6.1	3.2	3.8	2.2	2.7
160 mm	160	160.4	7.7	8.7	4.7	5.4	3.2	3.8
200 mm	200	200.4	9.6*	10.8*	5.9*	6.7*	4	4.7

* products under development

Technical Information - DUCT Pipes are manufactured as per DIN 8062 standard.
 - The standard length shall be 6m with socket or as per customer requirement.
 - The colour of the pipe shall be Grey / Black or as per customer requirement.

General Properties Specific Gravity : 1.41
 Vicat Softening Temperature : Min 80°C
 Tensile strength : > 45 MN/ sq cm at 20°C
 Flammability : UPVC is self extinguishing and will not support combustion
 Specific heat : 1040 J/ Kg / °C

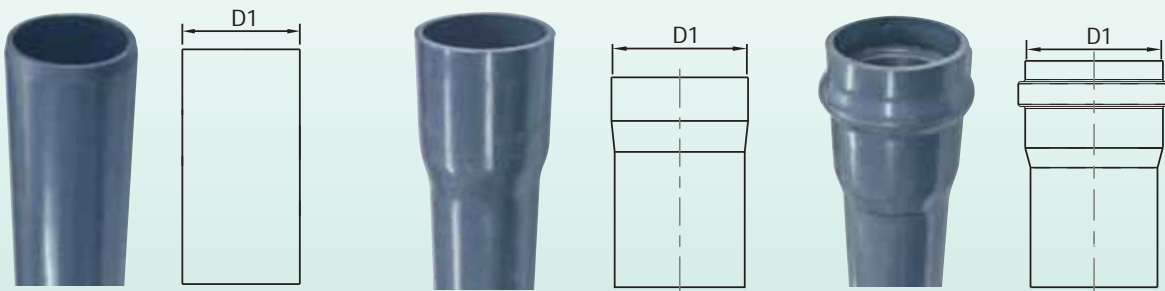
Applications Used in Telephone Cables, High voltage underground cables, street and housing power supplies, factory and industrial applications, sheathing of water and gas services.

UPVC MILLIMETER SIZE PRESSURE PIPE FITTINGS

DIN 8061 / 8062 ; PN-16 ; PN-10 ; PN-6

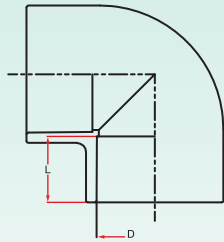
Millimeter size Pressure Pipes : DIN 8061 / 8062

Size	Mean Outside Dia		Wall thickness		Wall thickness		Wall thickness	
			PN - 16		PN - 10		PN - 6	
	Min	Max	Min	Max	Min	Max	Min	Max
20 mm	20.0	20.2	1.5	1.9	-	-	-	-
25 mm	25.0	25.2	1.9	2.3	1.5	1.9	-	-
32 mm	32.0	32.2	2.4	2.9	1.8	2.2	-	-
40 mm	40.0	40.2	3.0	3.5	1.9	2.3	1.8	2.2
50 mm	50.0	50.2	3.7	4.3	2.4	2.9	1.8	2.2
63 mm	63.0	63.2	4.7	5.4	3.0	3.5	1.9	2.3
75 mm	75.0	75.3	5.6	6.4	3.6	4.2	2.2	2.7
90 mm	90.0	90.3	6.7	7.6	4.3	5.0	2.7	3.2
110 mm	110.0	110.30	8.2	9.3	5.3	6.1	3.2	3.8
160 mm	160.0	160.40	11.9	13.3	7.7	8.7	4.7	5.4



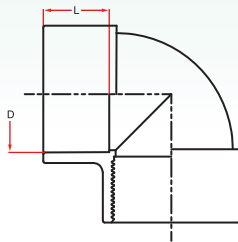
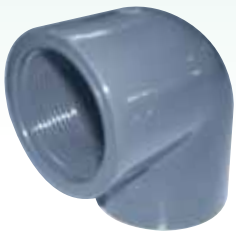
UPVC MILLIMETER SIZE PRESSURE PIPES AND FITTINGS

(Supercedes DIN 8063 ; PN-16)



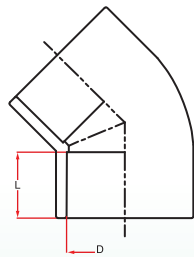
1) Elbow 90° Plain

Size	D	L	PN
20 mm	20.1	16.0	16
25 mm	25.1	19.0	16
32 mm	32.1	22.0	16
40 mm	40.1	26.0	16
50 mm	50.1	31.0	16
63 mm	63.1	38.0	16
75 mm	75.1	44.0	16
90 mm	90.1	51.0	16
110 mm	110.1	61.0	16
160 mm	160.2	86.0	16



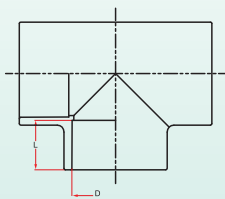
2) Female Elbow 90° One end plain/other end BSP female thread

Size	D	L	PN
20 x 1/2"	20.1	16.0	16
25 x 3/4"	25.1	19.0	16
32 x 1"	32.1	22.0	16
40 x 1 1/4"	40.1	26.0	16
50 x 1 1/2"	50.1	31.0	16
63 x 2"	63.1	38.0	16
75 x 2 1/2"	75.1	44.0	16
90 x 3"	90.1	51.0	16



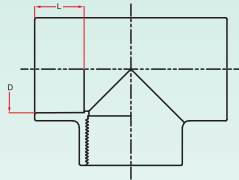
3) Elbow 45° Plain

Size	D	L	PN
20 mm	20.1	16.0	16
25 mm	25.1	19.0	16
32 mm	32.1	22.0	16
40 mm	40.1	26.0	16
50 mm	50.1	31.0	16
63 mm	63.1	38.0	16
75 mm	75.1	44.0	16
90 mm	90.1	51.0	16
110 mm	110.1	61.0	16
160 mm	160.2	86.0	16



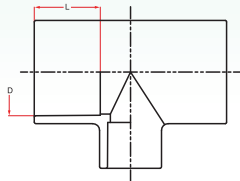
4) Tee 90° Plain

Size	D	L	PN
20 mm	20.1	16.0	16
25 mm	25.1	19.0	16
32 mm	32.1	22.0	16
40 mm	40.1	26.0	16
50 mm	50.1	31.0	16
63 mm	63.1	38.0	16
75 mm	75.1	44.0	16
90 mm	90.1	51.0	16
110 mm	110.1	61.0	16
160 mm	160.2	86.0	16



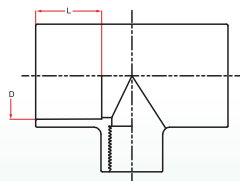
5) Female Tee : Two end plain/Center end BSP female thread

Size	D	L	PN
20 x 1/2"	20.1	16.0	16
25 x 3/4"	25.1	19.0	16
32 x 1"	32.1	22.0	16
40 x 1 1/4"	40.1	26.0	16
50 x 1 1/2"	50.1	31.0	16
63 x 2"	63.1	38.0	16
75 x 2 1/2"	75.1	44.0	16
90 x 3"	90.1	51.0	16



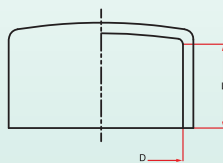
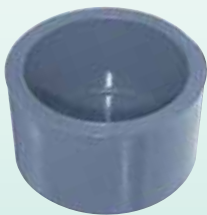
6) Reducing Tee

Size	D	L	PN
25 x 20mm	25.1	19.0	16
32 x 20mm	32.1	22.0	16
32 x 25mm	32.1	22.0	16
50 x 20mm	50.1	31.0	16
50 x 25mm	50.1	31.0	16
50 x 32mm	50.1	31.0	16
63 x 20mm	63.1	38.0	16
63 x 25mm	63.1	38.0	16
63 x 32mm	63.1	38.0	16
63 x 50mm	63.1	38.0	16
90x 63mm	90.1	51.0	16
110 x90mm	110.1	61.0	16
160 x 90mm	160.2	86.0	16
160 x 110mm	160.2	86.0	16



7) Reducing Female Tee: Two end plain/Center end BSP female thread

Size	D	L	PN
20 x 1/2"	20.1	16.0	16
25 x 1/2"	25.1	19.0	16
32 x 1/2"	32.1	22.0	16
32 x 3/4"	32.1	22.0	16
50 x 1/2"	50.1	31.0	16
50 x 3/4"	50.1	31.0	16
63 x 1/2"	63.1	38.0	16
63 x 3/4"	63.1	38.0	16



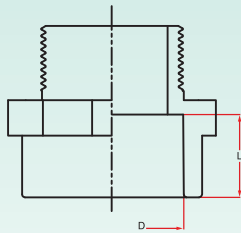
8) End Cap Plain

Size	D	L	PN
20 mm	20.1	16.0	16
25 mm	25.1	19.0	16
32 mm	32.1	22.0	16
40 mm	40.1	26.0	16
50 mm	50.1	31.0	16
63 mm	63.1	38.0	16
75 mm	75.1	44.0	16
90 mm	90.1	51.0	16
110 mm	110.1	61.0	16
160 mm	160.2	86.0	16



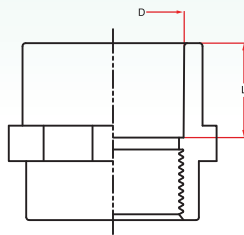
UPVC MILLIMETER SIZE PRESSURE PIPES AND FITTINGS

(Supercedes DIN 8063 ; PN-16)



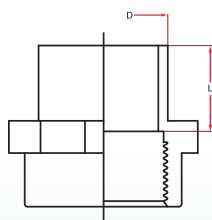
9) Male Thread Adaptor/Nipple Socket; BSP male thread/plain socket

Size	D	L	PN
20 x 1/2"	20.1	16.0	16
25 x 3/4"	25.1	19.0	16
32 x 1"	32.1	22.0	16
40 x 1 1/4"	40.1	26.0	16
50 x 1 1/2"	50.1	31.0	16
63 x 2"	63.1	38.0	16
75 x 2 1/2"	75.1	44.0	16
90 x 3"	90.1	51.0	16
110 x 4 "	110.1	61.0	16



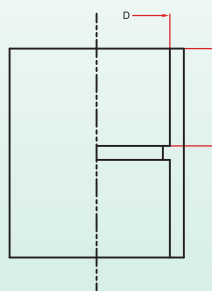
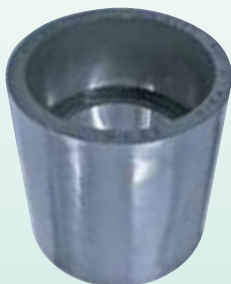
10) Female Socket Adaptor ; BSP female thread/plain socket

Size	D	L	PN
20 x 1/2"	20.1	16.0	16
25 x 3/4"	25.1	19.0	16
32 x 1"	32.1	22.0	16
40 x 1 1/4"	40.1	26.0	16
50 x 1 1/2"	50.1	31.0	16
63 x 2"	63.1	38.0	16
75 x 2 1/2"	75.1	44.0	16
90 x 3"	90.1	51.0	16
110 x 4 "	110.1	61.0	16



11) Female Slip Adaptor ; BSP female thread/male plain socket

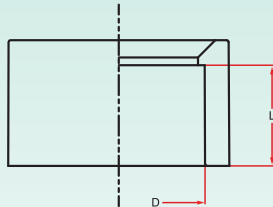
Size	D	L	PN
20 x 1/2"	20.1	16.0	16
25 x 3/4"	25.1	19.0	16
32 x 1"	32.1	22.0	16
40 x 1 1/4"	40.1	26.0	16
50 x 1 1/2"	50.1	31.0	16
63 x 2"	63.1	38.0	16



12) Socket

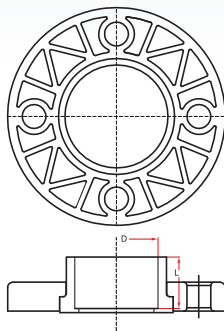
Size	D	L	PN
20 mm	20.1	16.0	16
25 mm	25.1	19.0	16
32 mm	32.1	22.0	16
40 mm	40.1	26.0	16
50 mm	50.1	31.0	16
63 mm	63.1	38.0	16
75 mm	75.1	44.0	16
90 mm	90.1	51.0	16
110 mm	110.1	61.0	16
160 mm	160.2	86.0	16





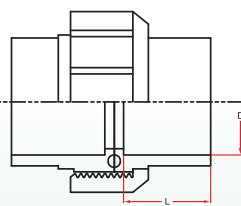
13) Reducer Bush

Size	D	L	PN
25 x 20mm	25.1	19.0	16
32 x 20mm	32.1	22.0	16
32 x 25mm	32.1	22.0	16
40 x 20mm	40.1	26.0	16
40 x 25mm	40.1	26.0	16
40 x 32mm	40.1	26.0	16
50 x 20mm	50.1	31.0	16
50 x 25mm	50.1	31.0	16
50 x 32mm	50.1	31.0	16
63 x 20mm	63.1	38.0	16
63 x 25mm	63.1	38.0	16
63 x 32mm	63.1	38.0	16
63 x 50mm	63.1	38.0	16
75 x 50mm	75.1	44.0	16
75 x 63mm	75.1	44.0	16
90 x 32mm	90.1	51.0	16
90x 50mm	90.1	51.0	16
90x 63mm	90.1	51.0	16
90x 75mm	90.1	51.0	16
110 x90mm	110.1	61.0	16
110 x63mm	110.1	61.0	16
160 x 90mm	160.2	86.0	16
160 x 110mm	160.2	86.0	16
225 x 160mm	225.3	119.0	16



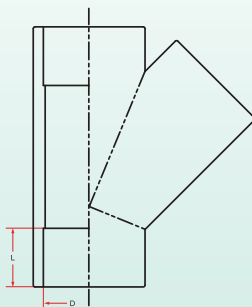
14) Flanges with stub

Size	D	L	PN
50 mm	50.10	31.0	16
63 mm	63.10	38.0	16
75 mm	75.10	44.0	16
90 mm	90.10	51.0	16
110 mm	110.10	61.0	16
160 mm	160.20	86.0	16



15) Unions socket type

Size	D	L	PN
20 mm	20.10	16.0	16
25 mm	25.10	19.0	16
32 mm	32.10	22.0	16
40 mm	40.10	26.0	16
50 mm	50.10	31.0	16
63 mm	63.10	38.0	16
75 mm	75.10	44.0	16
90 mm	90.10	51.0	16
110 mm	110.10	61.0	16



16) WYE 45°

Size	D	L	PN
20 mm	20.1	16.0	16
25 mm	25.1	19.0	16
32 mm	32.1	22.0	16
40 mm	40.1	26.0	16
50 mm	50.1	31.0	16
63 mm	63.1	38.0	16
75 mm	75.1	44.0	16
90 mm	90.1	51.0	16
110 mm	110.1	61.0	16
160 mm	160.2	86.0	16



CPVC PRESSURE PIPES AND FITTINGS

General Physical Properties of CPVC

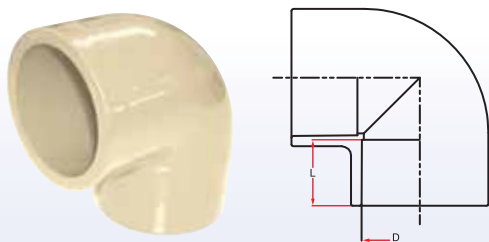
Sr. No	Characteristics	Value
1	Specific Gravity	1.5
2	Thermal Conductivity	0.13 K CAL CM H° C
3	Specific Heat	0.25 K CAL/KG/ °C
4	Flammability	CPVC is self – extinguishing
5	Tensile Strength	550 KG/sq cm at 20° C
6	Vicat Softening Temperature	110°C

CPVC Pressure Pipes : DIN 8079 / 8080

Size	Mean Outside Dia		Wall thickness		Wall thickness		Wall thickness		Wall thickness	
	Min	Max	PN - 25		PN - 20		PN - 16		PN - 10	
			Min	Max	Min	Max	Min	Max	Min	Max
20 mm	20.0	20.2	2.3	2.8	1.9	2.3	1.5	1.9	-	-
25 mm	25.0	25.2	2.8	3.3	2.3	2.8	1.9	2.3	1.5	1.9
32 mm	32.0	32.2	3.6	4.2	2.9	3.4	2.4	2.9	1.5	1.9
40 mm	40.0	40.2	4.5	5.2	3.7	4.3	3.0	3.5	1.9	2.3
50 mm	50.0	50.2	5.6	6.4	4.6	5.3	3.7	4.3	2.4	2.9
63 mm	63.0	63.2	7.1	8.1	5.8	6.4	4.7	5.4	3.0	3.5
75 mm	75.0	75.3	8.4	9.5	6.8	7.7	5.6	6.4	3.5	4.1
90 mm	90.0	90.3	10.1	11.4	8.2	9.3	6.7	7.6	4.3	5.0
110 mm	110.0	110.30	12.3	13.8	10.0	11.2	8.1	9.2	5.3	6.1
160 mm	160.0	160.40	17.9	19.9	14.6	16.3	11.8	13.2	7.7	8.7

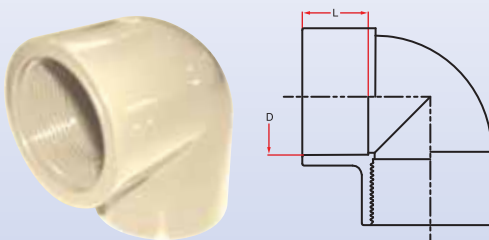
CPVC Pressure Fittings (PN-16) are available (upto 63mm) and the product ranges are same as UPVC Pressure Fittings

CPVC MILLIMETER SIZE PRESSURE PIPES AND FITTINGS



1) Elbow 90° Plain

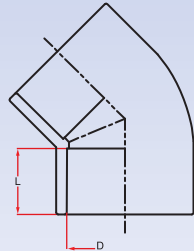
Size	D	L	PN
20 mm	20.1	16.0	16
25 mm	25.1	19.0	16
32 mm	32.1	22.0	16
40 mm	40.1	26.0	16
50 mm	50.1	31.0	16
63 mm	63.1	38.0	16



2) Female Elbow 90° One end plain/other end BSP female thread

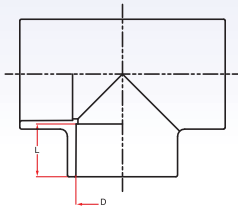
Size	D	L	PN
20 x 1/2"	20.1	16.0	16
25 x 3/4"	25.1	19.0	16
32 x 1"	32.1	22.0	16
40 x 1 1/4"	40.1	26.0	16
50 x 1 1/2"	50.1	31.0	16
63 x 2"	63.1	38.0	16





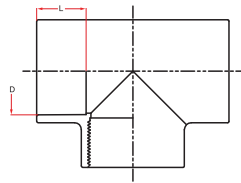
3) Elbow 45° Plain

Size	D	L	PN
20 mm	20.1	16.0	16
25 mm	25.1	19.0	16
32 mm	32.1	22.0	16
40 mm	40.1	26.0	16
50 mm	50.1	31.0	16
63 mm	63.1	38.0	16



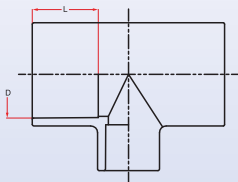
4) Tee 90° Plain

Size	D	L	PN
20 mm	20.1	16.0	16
25 mm	25.1	19.0	16
32 mm	32.1	22.0	16
40 mm	40.1	26.0	16
50 mm	50.1	31.0	16
63 mm	63.1	38.0	16



5) Female Tee : Two end plain/Center end BSP female thread

Size	D	L	PN
20 x 1/2"	20.1	16.0	16
25 x 3/4"	25.1	19.0	16
32 x 1"	32.1	22.0	16
40 x 1 1/4"	40.1	26.0	16
50 x 1 1/2"	50.1	31.0	16
63 x 2"	63.1	38.0	16

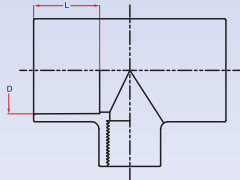


6) Reducing Tee

Size	D	L	PN
25 x 20mm	25.1	19.0	16
32 x 20mm	32.1	22.0	16
32 x 25mm	32.1	22.0	16
50 x 20mm	50.1	31.0	16
50 x 25mm	50.1	31.0	16
50 x 32mm	50.1	31.0	16
63 x 20mm	63.1	38.0	16
63 x 25mm	63.1	38.0	16
63 x 32mm	63.1	38.0	16
63 x 50mm	63.1	38.0	16

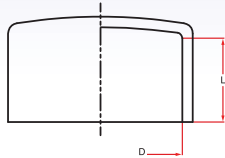
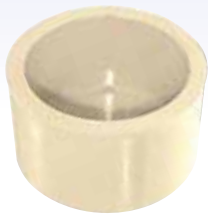


CPVC MILLIMETER SIZE PRESSURE PIPES AND FITTINGS



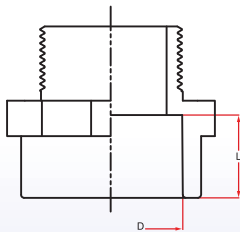
7) Reducing Female Tee: Two end plain/Center end BSP female thread

Size	D	L	PN
20 x 1/2"	20.1	16.0	16
25 x 1/2"	25.1	19.0	16
32 x 1/2"	32.1	22.0	16
32 x 3/4"	32.1	22.0	16
50 x 1/2"	50.1	31.0	16
50 x 3/4"	50.1	31.0	16
63 x 1/2"	63.1	38.0	16
63 x 3/4"	63.1	38.0	16



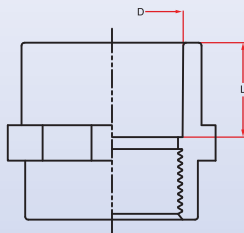
8) End Cap Plain

Size	D	L	PN
20 mm	20.1	16.0	16
25 mm	25.1	19.0	16
32 mm	32.1	22.0	16
40 mm	40.1	26.0	16
50 mm	50.1	31.0	16
63 mm	63.1	38.0	16



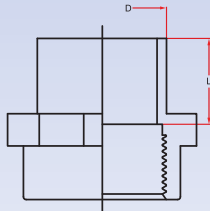
9) Male Thread Adaptor/Nipple Socket; BSP male thread/plain socket

Size	D	L	PN
20 x 1/2"	20.1	16.0	16
25 x 3/4"	25.1	19.0	16
32 x 1"	32.1	22.0	16
40 x 1 1/4"	40.1	26.0	16
50 x 1 1/2"	50.1	31.0	16
63 x 2"	63.1	38.0	16



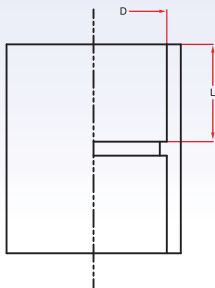
10) Female Socket Adaptor ; BSP female thread/plain socket

Size	D	L	PN
20 x 1/2"	20.1	16.0	16
25 x 3/4"	25.1	19.0	16
32 x 1"	32.1	22.0	16
40 x 1 1/4"	40.1	26.0	16
50 x 1 1/2"	50.1	31.0	16
63 x 2"	63.1	38.0	16



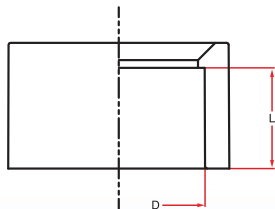
11) Female Slip Adaptor ; BSP female thread/male plain socket

Size	D	L	PN
20 x 1/2"	20.1	16.0	16
25 x 3/4"	25.1	19.0	16
32 x 1"	32.1	22.0	16
40 x 1 1/4"	40.1	26.0	16
50 x 1 1/2"	50.1	31.0	16
63 x 2"	63.1	38.0	16



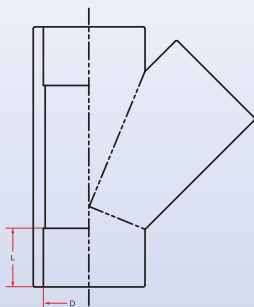
12) Socket

Size	D	L	PN
20 mm	20.1	16.0	16
25 mm	25.1	19.0	16
32 mm	32.1	22.0	16
40 mm	40.1	26.0	16
50 mm	50.1	31.0	16
63 mm	63.1	38.0	16



13) Reducer Bush

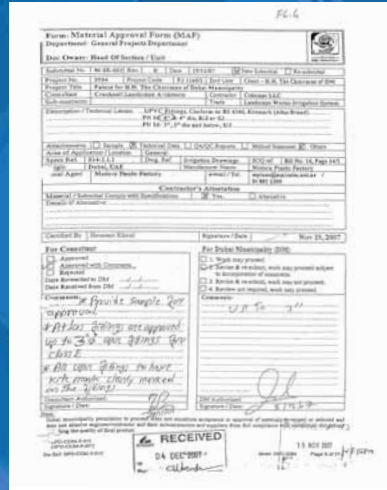
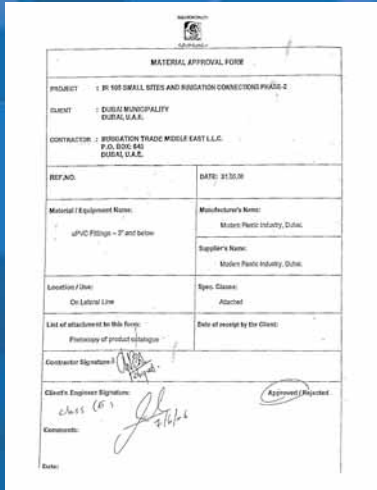
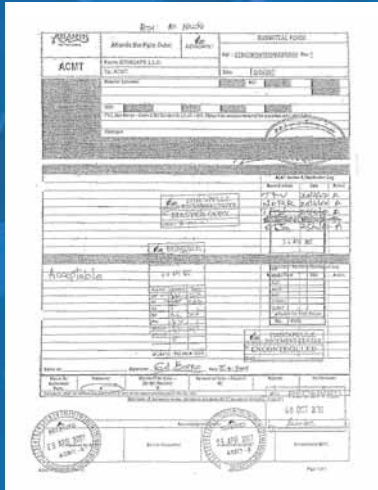
Size	D	L	PN
25 x 20mm	25.1	19.0	16
32 x 20mm	32.1	22.0	16
32 x 25mm	32.1	22.0	16
40 x 20mm	40.1	26.0	16
40 x 25mm	40.1	26.0	16
40 x 32mm	40.1	26.0	16
50 x 20mm	50.1	31.0	16
50 x 25mm	50.1	31.0	16
50 x 32mm	50.1	31.0	16
63 x 20mm	63.1	38.0	16
63 x 25mm	63.1	38.0	16
63 x 32mm	63.1	38.0	16
63 x 50mm	63.1	38.0	16

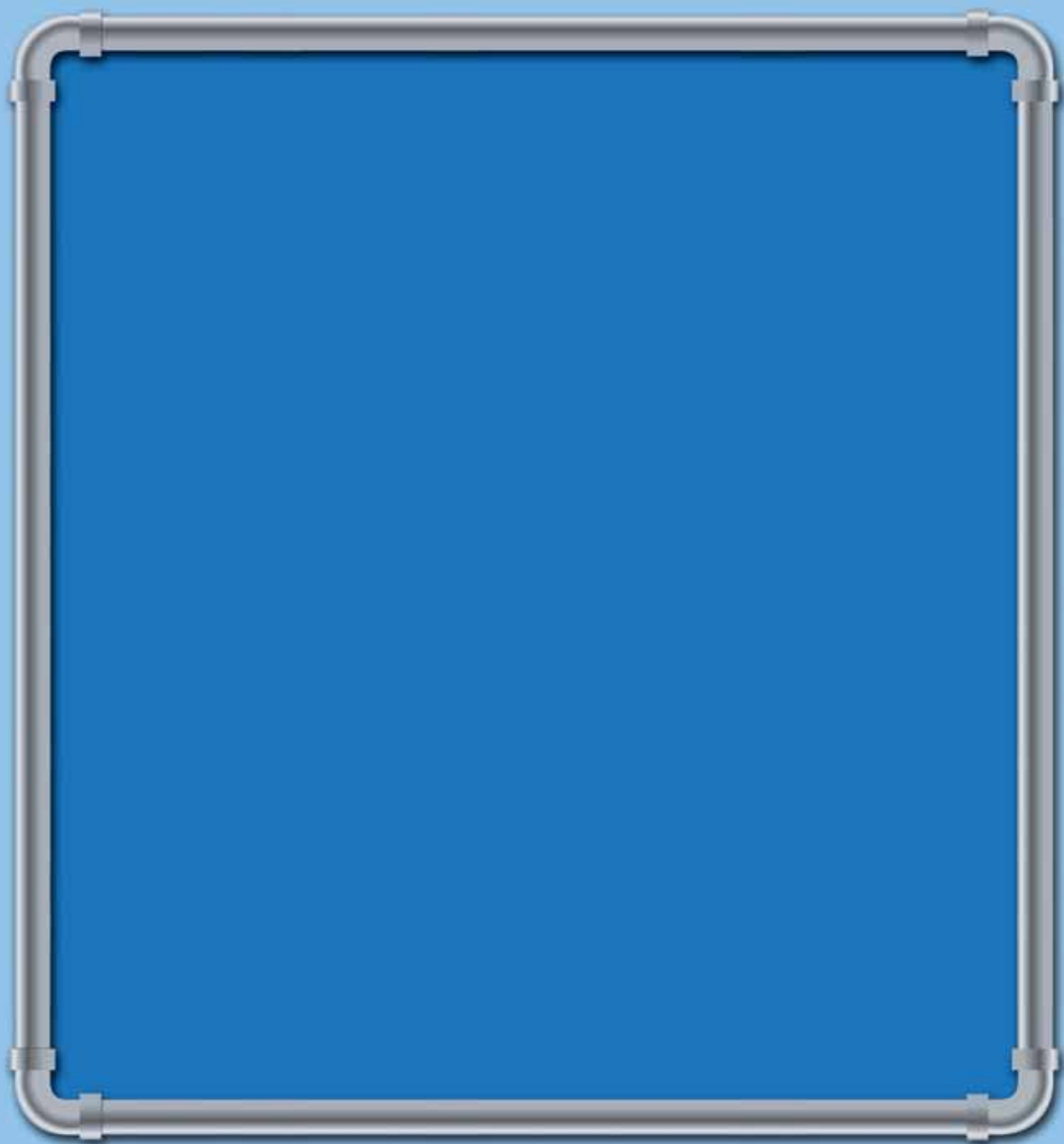


14) WYE 45°

Size	D	L	PN
20 mm	20.1	16.0	16
25 mm	25.1	19.0	16
32 mm	32.1	22.0	16
40 mm	40.1	26.0	16
50 mm	50.1	31.0	16







MPI ATLAS