

POWER Plastics

Ultimate Pipeline Systems



POWER PLASTIC FACTORY LLC

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Disclaimer

All information in this catalogue is correct to our best of knowledge at the time of preparation. However we reserve the right to alter, amend and update any product, information and service described in this catalogue.



POWER : “THE FIRST NAME OF BEST QUALITY”

“POWER” Established nearly 30 years ago. Since its foundation, POWER GROUP has been focusing on the cooperation with the customers from countries of Middle East, Asia and Africa. Its activity involves a complex of business, Manufacturing, Trading and Real estate.

Headquartered in Abu Dhabi, UAE, We operate five manufacturing facilities and eight sales locations that serve customers across Middle East, Africa and Asia with the products breadth that meets a diverse set of customer requirements.

POWER GROUP is a leading manufacturer of PVC, UPVC and PPR Pipes & fittings and Distributors of all types of building materials such as sanitary, plumbing, hardware, paints, tools, electrical goods, fiberglass materials, manhole covers, water tanks, water heaters, Pipe and fittings of HDPE, PEX, COPPER, GI, PVC, uPVC & PPR from various manufacturers around the world. The famous brand “POWER THERM” (PPR-Pipe) is our own product from New Power Plastic Industry.

OUR OWN BRANDS

“POWER plastics” - PVC, uPVC, PE Pipes and Fittings

“POWER therm” - PPR Pipes and Fittings

“POWER PEX ” - PEX Piping System

Our Products and the range:

- 1. Pressure pipe uPVC from 20mm to 400mm for water supply, irrigation & industrial potential gas systems (4, 6, 16 bar pressure)*
- 2. Soil, waste (above ground), sewer and drainage (underground) uPVC pipes from 1.1/4 inch to 16 inch*
- 3. Electrical conduit & cable ducts from 20mm up to 400mm*
- 4. PVC and uPVC fabricated fittings (long radius bend, coupler, grease trap, gully trap, dry manholes, end caps, interceptors etc.*
- 5. PPR (polypropylene random) pipes from 20mm to 110mm (PN 16, 20, 25) and PPR fittings PN-25*
- 6. PERT (PEX), pipes & fittings.*
- 7. Power plastics polyethylene product range include low density(LDPE), medium density (MDPE) & High density (HDPE) Polyethylene pipes for various applications*
- 8. Widest range of building materials including sanitary, plumbing, hardware, paints, tools, electrical goods, fiberglass materials, manhole covers, water tanks, water heaters, safety items etc. are available at our trading outlets in Abudhabi and Mussaffah area.*

POWER PLASTIC FACTORY

▶▶ POWER products are suitable for various applications such as waterline, irrigation, gardening, soil and waste discharge, sewerage, underground drainage, cable ducts for electrical and telecommunication networks etc.

“QUALITY IS OUR PRIORITY”

We are proud to have significant investments in the most modern machinery and methods for the production of high quality and bulk output. Consistently meet quick demands of market and speedy delivery within time limit. We are using only the genuine pure raw materials from well known international manufacturers. Our products are manufactured according to various specifications of international standards such as ISO, DIN, BS, BS EN, NEMA and ASTM.

OUR QUALITY CONTROL MEASURES

- ▶▶ *Daily Round the clock Inspection.*
- ▶▶ *Well Trained Staff.*
- ▶▶ *Well Equipped Laboratory.*
- ▶▶ *Most Modern Machineries.*
- ▶▶ *High Quality Raw Materials.*
- ▶▶ *Timely Production.*
- ▶▶ *Checking of Finished goods, to ensure the quality.*



We also produce long radius bends in different degrees with plain & socketed ends, sockets, double socket, repair couplings, spigots, flanges, adaptor, perforated & slotted pipes etc. We also undertake all kinds of fabrication works.

If any clarification about our products, please contact our technical department. We look forward to assist you and welcome your valuable suggestions.



Standards

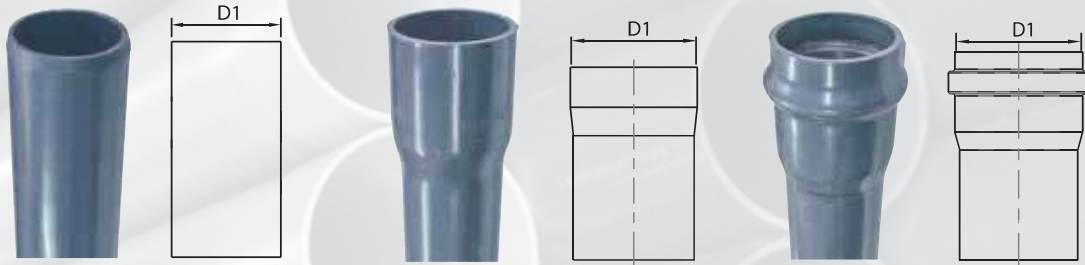
Power Plastics High Pressure, Drainage, Duct, PVC, uPVC pipes and fittings are manufactured in accordance with the following standards:

Pipes & Fittings:

DIN 8062 : 2009	Unplasticized polyvinyl chloride (PVC-U) pipes; dimensions
DIN 8061 : 2009	Unplasticized polyvinyl chloride pipes -General quality requirements and testing
BSEN 1452 : 2009	Plastic piping system for portable water (PVC-U)
ASTM D 1785	Standard Specification for PolyVinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120
ASTM D 2241 96A	Polyvinyl Chloride (PVC) Pressure Rated Pipes, (SDR Series)
ASTM D 2467	Standard Specification for PolyVinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 80
BS 3505 : 1986	Specification for unplasticized polyvinyl chloride (PVC-U) pressure pipes for cold potable water
BS 3506 : 1969	Specification for unplasticized PVC pipe for industrial uses
NEMA TC-2,6&8	PVC u Duct Pipe for telephone duct & Electrical conduit
BS 4346 : 1982	Joints and fittings for use with unplasticized PVC pressure pipes. Specification for solvent cement
ASTM D 2464	Standard Specification for Threaded PolyVinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 80
DIN 8063 : 2009	Pipe Joints and Pipe Fittings for Pipes under Pressure made of Unplasticized Polyvinyl Chloride (Rigid PVC)
ASTM D 2466	Standard Specification for PolyVinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 40
ISO 4422-2	uPVC Pipes and fittings for water supply Superseded by ISO 1452-2/BSEN ISO 1452
ASTM D 2241 - 09	Standard Specification for Polyvinyl Chloride (PVC) Pressure-Rated Pipe (SDR Series)
BSEN 1401-1 : 2009	Plastic Piping Systems for Non-pressure Underground Drainage and Sewerage. Unplasticized Polyvinyl Chloride (PVC-U). Specifications for Pipes, Fittings and the System
BSEN 1329-1:2014	uPVC drainage pipes for above ground drainage.
BS - 5255	MuPVC and ABS Waste Pipe.
BS 5481 : 1977	Specification for Unplasticized PVC Pipe and Fitting for Gravity Sewers



For Water Supply, Irrigation, Drainage & Duct Cabling



PRESSURE PIPES SYSTEM ISO 161/1 METRIC SERIES

Outside Diameter	Nominal Wall Thickness			
	Class: 4	Class: 6	Class: 10	Class: 16
mm	mm	mm	mm	mm
20	-	-	-	1.6
25	-	-	-	1.9
32	-	-	-	2.4
40	-	-	1.9	3.0
50	-	1.5	2.4	3.2
63	-	1.7	2.5	3.8
75	-	1.9	3.0	4.5
90	1.7	2.2	3.5	5.4
110	2.0	2.7	4.2	6.6
125	2.5	3.1	4.8	7.4
140	2.8	3.5	5.4	8.3
160	2.8	4.0	6.2	9.5
180	3.6	4.4	6.9	10.7
200	2.9	4.9	7.7	11.9
225	4.0	5.5	8.6	13.4
250	4.5	6.2	9.6	14.8
280	5.0	6.9	10.7	16.6
315	5.2	7.7	12.1	18.7
355	-	8.7	13.6	21.1
400	-	9.8	15.3	23.7
450	-	11.0	17.2	26.7

Working pressure are given for a temperature of 20 °C

This specification will be supplied in 6 meter with solvent weld socket, rubber ring socket & plain end in dark gray. Length can be changed according to customer's requirements.

uPVC PRESSURE PIPES - DIN 8061/62 (BASED ON ISO 161/1 METRIC SERIES)

Outside Diameter	Nominal Wall Thickness			
	Series 2 PN: 4	Series 3 PN: 6	Series 4 PN: 10	Series 5 PN: 16
mm	mm	mm	mm	mm
20	-	-	-	1.5
25	-	-	-	1.9
32	-	-	1.6	2.4
40	-	-	1.9	3.0
50	-	1.5	2.4	3.7
63	-	1.9	3.0	4.7
75	1.5	2.2	3.6	5.6
90	1.8	2.7	4.3	6.7
110	2.2	3.2	5.3	8.1
125	2.5	3.7	6.0	9.2
140	2.8	4.1	6.7	10.3
160	3.2	4.7	7.7	11.8
180	3.6	5.3	8.6	13.3
200	3.9	5.9	9.6	14.7
225	4.4	6.6	10.8	16.6
250	4.9	7.3	11.9	18.4
280	5.5	8.2	13.4	20.6
315	6.2	9.2	15.0	23.2
355	7.0	10.4	16.9	26.1
400	7.9	11.7	19.1	29.4
450	8.8	13.2	21.5	—

Pressure rating is as per working pressure 20 °C

Pipes to this specification will be supplied in 6 meters with solvent weld socket, rubber ring socket or plain end in dark grey. Length can be changed according to customer's requirements.

UPVC PRESSURE PIPES In accordance to BS EN 1452-2:2009

(Formerly BS 3505) Equal to ISO 4422-2:1996
(Based on ISO 4065)

Nominal Outside Diameter (mm)	Nominal (minimum) Wall Thickness							
	S 16.7 (SDR 34.4)	S 16 (SDR 33)	S 12.5 (SDR 26)	S 10 (SDR 21)	S 8 (SDR 17)	S 6.3 (SDR 13.6)	S 5 (SDR 11)	
	Nominal Pressure PN based on service (design) coefficient C = 2.5							
		PN 6	PN 8	PN 10	PN 12.5	PN 16	PN 20	
mm	mm	mm	mm	mm	mm	mm	mm	
20	-	-	-	-	-	1.5	1.9	
25	-	-	-	-	1.5	1.9	2.3	
32	-	-	1.5	1.6	1.9	2.4	2.9	
40	-	1.5	1.6	1.9	2.4	3.0	3.7	
50	-	1.6	2.0	2.4	3.0	3.7	4.6	
63	-	2.0	2.5	3.0	3.8	4.7	5.8	
75	-	2.3	2.9	3.6	4.5	5.6	6.8	
90	-	2.8	3.5	4.3	5.4	6.7	8.2	
	Nominal Pressure PN based on service (design) coefficient C = 2.0							
-	PN 6	PN 7.5	PN 8	PN 10	PN 12.5	PN 16	P N20	PN 25
110	2.7	3.2	3.4	4.2	5.3	6.6	8.1	10.0
125	3.1	3.7	3.9	4.8	6.0	7.4	9.2	11.4
140	3.5	4.1	4.3	5.4	6.7	8.3	10.3	12.7
160	4.0	4.7	4.9	6.2	7.7	9.5	11.8	14.6
180	4.4	5.3	5.5	6.9	8.6	10.7	13.3	16.4
200	4.9	5.9	6.2	7.7	9.6	11.9	14.7	18.2
225	5.5	6.6	6.9	8.6	10.8	13.4	16.6	-
250	6.2	7.3	7.7	9.6	11.9	14.8	18.4	-
280	6.9	8.2	8.6	10.7	13.4	16.6	20.6	-
315	7.7	9.2	9.7	12.1	15.0	18.7	23.2	-
355	8.7	10.4	10.9	13.6	16.9	21.1	26.1	-
400	9.8	11.7	12.3	15.3	19.1	23.7	29.4	-
450	11.0	13.2	13.8	17.2	21.5	26.7	33.1	-

- Pipes are available in Standard Length of 6 meters
- Overall Service (design) coefficient C = 2.5 used for sizes up to 90mm & C = 2.0 used for above 90 mm.
- Pipes are available with plain ends, Solvent Weld Sockets & Rubber Ring (From 75 mm & above) Sockets.
- Working Pressures are given for a temperature @ 20C.
- Colour Dark Grey

UPVC PRESSURE PIPE SYSTEM

For cold portable water in accordance to BS 3505 : 1986 / BS3506 : 1969
Imperial range - BS EN 1452 : 2009

Nominal Size	Mean Outside Diameter		Wall Thickness									
			Class O (non pressure)		Class B 6.0 bar*		Class C 9.0 bar*		Class D 12.0 bar*		Class E 15.0 bar*	
	MIN	MAX	Individual Value		Individual Value		Individual Value		Individual Value		Individual Value	
	Inches	mm	mm	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
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	2.7
1 1/4	42.1	42.4	-	-	-	-	-	-	2.2	2.7	2.7	3.2
1 1/2	48.1	48.4	1.8	2.2	-	-	-	-	2.5	3.0	3.1	3.7
2	60.2	60.5	1.8	2.2	-	-	2.5	3.0	3.1	3.7	3.9	4.5
2 1/2	75.0	75.3	1.8	2.2	-	-	3.0	3.5	3.9	4.5	4.8	5.5
3	88.7	89.1	1.8	2.2	2.9	3.4	3.5	4.1	4.6	5.3	5.7	6.6
4	114.1	114.5	2.3	2.8	3.4	4.0	4.5	5.2	6.0	6.9	7.3	8.4
5	140.0	140.4	2.6	3.7	3.8	4.4	5.5	6.4	7.3	8.4	9.0	10.4
6	168.0	168.5	3.1	3.7	4.5	5.2	6.6	7.6	8.8	10.2	10.8	12.5
7	193.5	194.0	3.1	3.7	5.2	6.0	7.7	8.9	10.1	11.7	12.3	14.5
8	218.8	219.4	3.1	3.7	5.3	6.1	7.8	9.0	10.3	11.9	12.6	14.5
9	244.1	244.8	3.1	3.7	5.9	6.8	8.7	10.0	11.5	13.3	14.1	16.3
10	272.6	273.4	3.1	3.7	6.6	7.6	9.7	11.2	12.8	14.8	15.7	18.1
12	323.4	324.3	3.1	3.7	7.8	9.0	11.5	13.3	15.2	17.5	18.7	21.6
14	355.0	356.0	3.6	4.2	8.5	9.8	12.6	14.5	16.7	19.2	20.5	23.6
16	405.9	406.9	4.1	4.8	9.7	11.2	14.5	16.7	19.0	21.9	23.4	27.0

Stocks are available with plain ends, Solvent Sockets & Rubber Ring Sockets in Standard Lengths of 6 meters

Pressure ratings for working pressures at 20 c

Class C	9.0 bar	130.0 lbf/in	300 ft head
Class D	12.0 bar	173.0 lbf/in	400 ft head
Class E	15.0 bar	217.0 lbf/in	500 ft head

UPVC PRESSURE PIPES In accordance to ANSI/ASTM D 1785 Schedule 40 / Schedule 80 / Schedule 120

ASTM D-1785

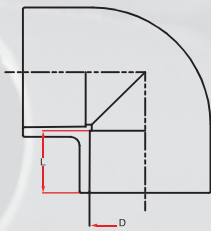
Size	Min OD	Max OD	SCH-40		SCH-80		SCH-120	
			Min mm	Max mm	Min mm	Max mm	Min mm	Max mm
1/2	21.24	21.44	2.77	3.28	3.73	4.24	4.32	4.83
3/4	26.57	26.77	2.87	3.38	3.91	4.42	4.32	4.83
1	33.27	33.53	3.38	3.89	4.55	5.08	5.28	5.69
1 1/4	42.03	42.29	3.56	4.07	4.85	5.43	5.46	6.12
1 1/2	48.11	48.41	3.68	4.19	5.08	5.69	5.72	6.40
2	60.17	60.47	3.91	4.42	5.54	6.20	6.35	7.11
2 1/2	72.84	73.20	5.16	5.77	7.01	7.85	7.62	8.53
3	88.7	89.10	5.49	6.15	7.62	8.53	8.89	9.96
3 1/2	101.40	101.80	5.74	6.42	8.08	9.04	8.89	9.96
4	114.07	114.53	6.02	6.73	8.56	9.58	11.10	12.42
5	141.05	141.55	6.55	7.34	9.52	10.66	12.70	14.22
6	168.00	168.56	7.11	7.97	10.97	12.29	14.27	15.97
8	218.70	219.46	8.18	9.17	12.70	14.22	18.24	20.42
10	272.67	273.43	9.27	10.39	15.06	16.86	21.41	23.97
12	323.47	324.23	10.31	11.55	17.45	19.53	25.40	28.45
14	355.47	355.98	11.10	12.45	19.05	21.34	-	-
16	405.92	406.88	12.70	14.22	21.41	23.98	-	-
18	456.72	457.68	14.27	15.97	23.80	26.64	-	-
20	507.42	508.58	15.06	16.86	26.19	29.34	-	-
24	608.81	610.39	17.45	19.53	30.94	34.65	-	-

Standard Length : 4, 5.8, & 6 Mtr.
 Color : Schedule 40 Dark Grey or White
 Schedule 80 & 120 Dark Grey
 Socket Type : Solvent Weld / Plain End

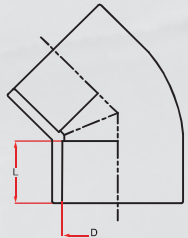


UPVC PRESSURE PIPES AND FITTINGS

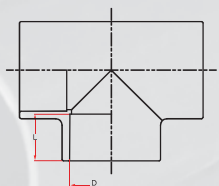
(BS EN 1452; CLASS-E-PN-15, DIN 8063-PN-16)



Elbow 90° Plain			
Size mm	Size Inch	D	L
20 mm	1/2"	20.1	16.0
25 mm	3/4"	25.1	19.0
32 mm	1"	32.1	22.0
40 mm	1 1/4"	40.1	26.0
50 mm	1 1/2"	50.1	31.0
63 mm	2"	63.1	38.0
75 mm	2 1/2"	75.1	44.0
90 mm	3"	90.1	51.0
110 mm	4"	110.1	61.0
160 mm	6"	160.2	86.0



Elbow 45° Plain			
Size mm	Size Inch	D	L
20	1/2"	21.3	16.5
25	3/4"	26.7	19.5
32	1"	33.5	22.5
40	1 1/4"	42.2	27.0
50	1 1/2"	48.2	30.0
63	2"	60.3	36.0
75	2 1/2"	75.1	44.0
90	3"	88.8	50.5
110	4"	114.2	63.0
160	6"	168.2	90.0

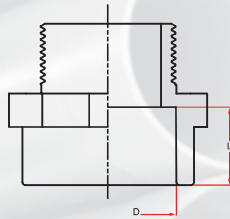


Tee 90° Plain			
Size mm	Size Inch	D	L
20	1/2"	21.3	16.5
25	3/4"	26.7	19.5
32	1"	33.5	22.5
40	1 1/4"	42.2	27.0
50	1 1/2"	48.2	30.0
63	2"	60.3	36.0
75	2 1/2"	75.1	44.0
90	3"	88.8	50.5
110	4"	114.2	63.0
160	6"	168.2	90.0

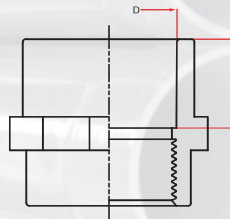


UPVC PRESSURE PIPES AND FITTINGS

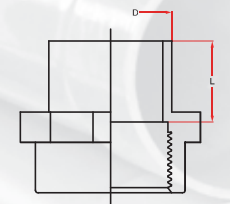
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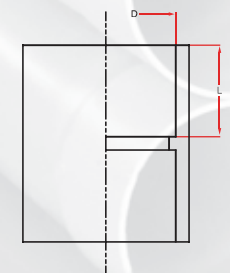
Male Thread Adaptor/Nipple Socket; BSP male thread/plain socket			
Size mm	Size Inch	D	L
20	1/2"	21.3	16.5
25	3/4"	26.7	19.5
32	1"	33.5	22.5
40	1 1/4"	42.2	27.0
50	1 1/2"	48.2	30.0
63	2"	60.3	36.0
75	2 1/2"	75.1	44.0
90	3"	88.8	50.5
110	4"	114.2	63.0



Female Socket Adaptor ; BSP female thread/plain socket			
Size mm	Size Inch	D	L
20	1/2"	21.3	16.5
25	3/4"	26.7	19.5
32	1"	33.5	22.5
40	1 1/4"	42.2	27.0
50	1 1/2"	48.2	30.0
63	2"	60.3	36.0
75	2 1/2"	75.1	44.0
90	3"	88.8	50.5
110	4"	114.2	63.0



Female Slip Adaptor ; BSP female thread/male plain socket			
Size mm	Size Inch	D	L
20	1/2"	21.3	16.5
25	3/4"	26.7	19.5
32	1"	33.5	22.5
40	1 1/4"	42.2	27.0
50	1 1/2"	48.2	30.0
63	2"	60.3	36.0



Socket			
Size mm	Size Inch	D	L
20	1/2"	21.3	16.5
25	3/4"	26.7	19.5
32	1"	33.5	22.5
40	1 1/4"	42.2	27.0
50	1 1/2"	48.2	30.0
63	2"	60.3	36.0
75	2 1/2"	75.1	44.0
90	3"	88.8	50.5
110	4"	114.2	63.0
160	6"	168.2	90.0

TELEPHONE DUCT & ELECTRICAL CONDUIT NEMA TC-2 :2003

NOMINAL SIZE	MEAN OUTSIDE Diameter (mm)		WALL THICKNESS(mm)					
			EPT		EPC40		EPC80	
Inch	min	max	min	max	min	max	min	max
1/2"	21.24	21.44	1.52	2.03	2.77	3.28	3.73	4.24
3/4"	26.57	26.77	1.52	2.03	2.87	3.38	3.91	4.42
1"	33.27	33.53	1.52	2.03	3.38	3.89	4.55	5.08
1 1/4"	42.03	42.29	1.78	2.29	3.56	4.07	4.85	5.43
1 1/2"	48.11	48.41	2.03	2.54	3.68	4.19	5.08	5.69
2"	60.17	60.47	2.54	3.05	3.91	4.42	5.54	6.20
2 1/2"	72.84	73.20	2.79	3.30	5.16	5.77	7.01	7.85
3"	88.70	89.10	3.18	3.68	5.49	6.15	7.62	8.53
4"	114.07	114.53	3.81	4.32	6.02	6.73	8.56	9.58
6"	168.00	168.56	-	-	7.11	7.97	10.97	12.29
8"	218.62	219.38	-	-	8.18	9.17	12.70	14.22

Standard Length : 5.8 & 6 meters
EPT : Electrical Plastic Tubing

Colour : Grey & Black
EPC : Electrical Plastic Conduit

Socket Type : Solvent Weld

NEMA TC – 6 & 8 / ASTM F512: PVC-U Duct Pipe for Underground Installations

Nominal Size (Inch)	Min OD (mm)	Max OD (mm)	Type: EB 20	Type: EB 35	Type: DB 60	Type: DB 100	Type: DB 120
			Wall Thickness (minimum) (mm)	Wall Thickness (minimum) (mm)	Wall Thickness (minimum) (mm)	Wall Thickness (minimum) (mm)	Wall Thickness (minimum) (mm)
1"	33.68	33.94	-	-	-	-	1.52
1 1/2"	48.11	48.41	-	-	-	-	1.52
2"	60.18	60.48	1.52	1.52	1.52	-	1.96
3 1/2"	101.40	101.80	1.55	1.93	2.34	2.84	3.00
4"	114.07	114.53	2.08	2.54	3.07	3.68	3.91
5"	141.05	141.55	2.62	3.20	3.86	4.55	4.85
6"	168.00	168.56	3.18	3.86	4.62	5.41	5.77

Standard Length : 5.8 & 6 meters
Colour : Grey & Black
Socket Type : Solvent Weld

EB : Encased Burial (in concrete)
DB : Direct Burial (without encasement in concrete)

ASTM D 2241

Class 100 / Class 125 / Class 160 / Class 200 / Class 315

Normal Pipe Size (Inch)	Outside diameter mm	Wall Thickness				
		SDR-41 100psi mm	SDR-32.5 125psi mm	SDR-26 160psi mm	SDR-21 200psi mm	SDR-13.5 315psi mm
1/2	21.3	-	-	-	-	1.6
3/4	26.7	-	-	-	1.5	2.0
1	33.4	-	-	1.5	1.6	2.5
1 1/4	42.2	-	1.5	1.6	2.0	3.1
1 1/2	48.3	-	1.5	1.9	2.3	3.6
2	60.3	-	1.9	2.3	2.9	4.5
2 1/2	73.0	-	2.2	2.8	3.5	5.4
3	88.9	2.2	2.7	3.4	4.2	6.6
4	114.3	2.8	3.5	4.4	5.4	8.5
6	168.3	4.1	5.2	6.5	8.0	12.5
8	219.1	5.3	6.7	8.4	10.4	-
10	273.1	6.6	8.4	10.5	13.0	-
12	323.9	7.9	9.9	12.5	15.4	-
14	355.6	8.7	10.9	13.7	16.9	-
16	406.4	9.9	12.5	15.6	19.3	-

uPVC PRESSURE PIPES FOR COLD POTABLE WATER

WHITE COLOUR - CLASS - E (Metric Range)



Normal Size	Mean Outside Diameter		Wall Thickness	
	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	2.7
1 1/4	42.1	42.4	2.7	3.2
1 1/2	48.1	48.4	3.1	3.7
2	60.2	60.5	3.9	4.5

Conduit Pipe

BS 6099 - 2

Size mm	Wall Thickness (mm)		
	Light mm	Medium mm	Heavy mm
20	1.30	1.55	2.10
25	1.45	1.80	2.20
32	1.70	2.10	2.70
38	2.0	2.20	2.50
40	2.10	2.30	2.80
50	2.45	2.85	3.40



PVC-U Duct Pipes For Electrical and Telephone Cables (Specification as per ETISALAT & DU TELECOMMUNICATION)

Duct No.	Avg. Outside Diameter	Wall Thickness	
		Min (mm)	Max (mm)
mm	mm		
54 - D	96.5	3.25	3.65
56	53.9	1.55	1.70
57	114.5	3.40	3.60



UPVC DUCT -BENDS & COUPLINGS ETISALAT Specifications MS 7A

LONG RADIUS BEND 90°

BEND DUCT NO.	A	B	C	D	E	F	G
	Radius to Axis mm	Length of Straight ends mm	Length of Socket mm	Inside dia of Socket at Shoulder mm	Inside of Socket at Entry mm	Wall Thickness of Bend mm	Outside dia of Bend mm
54 A	457	100	100	96±0.1	97±0.1	3.25±0.4,-0.0	96.5±0.2
56A	622	125	70	53.7±0.1	54.1±0.1	1.55±0.15,-0.0	53.9±0.2
56	229	125	70	53.7±0.1	54.1±0.1	1.55±0.15,-0.0	53.9±0.2



COUPLER

Coupling for Duct	A	B	C	D	E	F	Wall Thickness
54 A	100	100	100	96+0.1	97+0.1	90.0+01	3.25+0.4,-0.0
56	70	70	70	53.7+0.1	54.1+0.1	50.8+01	1.55+0.15,-0.0

U-PVC FABRICATED BENDS TO NEMA TC-CL-C DUCT BENDS

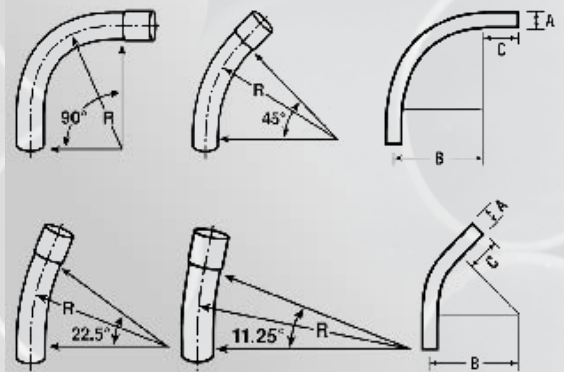
Long Radius Bends

For Use with: BS Standard Duct Pipes

NEMA TC 2 Rigid PVC Tubing and Conducts

EPT-A, EPC-40 and EPC-80

Nominal Inch	Outside Diameter		Radius (R)	
	Inch	mm	Inch	mm
1/2	0.84	21.34	4	102
3/4	1.05	26.67	4.5	114
1	1.315	33.4	5.75	146
1 1/2	1.9	48.26	8.25	210
2	2.375	60.32	9.5	241
2 1/2	2.875	73.02	10.5	267
3	3.5	88.9	13	330
4	4.5	114.3	16	406
5	5.63	141.3	24	610
6	6.628	168.28	30	762



Pipes of ISO 161/1 /, DIN 8062, ISO 4422, EN 1452

Nominal Inch	Minimum bend radius	Minimum	Design	Length	Zd Min
		11°	Angle (°) 22°	45°	90°
50	221	169	182	230	359
63	221	169	182	230	359
75	263	176	198	254	408
90	315	185	217	285	469
110	385	204	243	326	551
140	560	252	308	428	756
160	560	252	308	428	756
200	700	280	360	510	920
225	788	313	392	562	1023
280	980	365	463	674	1248
315	1103	398	509	746	1392



PVC DUCT - LONG RADIUS BENDS-30,45 & 90 DEG

BS 3506, / CL-C & CL-D

SIZE	L1	L2	L3	L4	R
Dia	(mm)	(mm)	(mm)	(mm)	(mm)
2"	481	481	567	567	300
3"	638	638	755	755	400
4"	626	626	683	683	400
6"	699	699	717	717	400
8"	914	914	1090	1090	600



3"/ 75mm dia UPVC CL-C Duct Street Lighting Bend

Poles	Size/Dia	Radius	H	W
3.50mtr	3" CL-C	600mm	700mm	600mm
5.00mtr	3" CL-C	600mm	700mm	600mm
6.00mtr	3" CL-C	600mm	1050mm	600mm
8.00mtr	3" CL-C	600mm	1050mm	600mm
10.00mtr	3" CL-C	600mm	1050mm	600mm



4"/ 100mm dia UPVC CL-C Duct Street Lighting Bend

Poles	Size/Dia	Radius	H	W
12.00mtr	4" CL-C	600mm	1050mm	600mm
14.00mtr	4" CL-C	600mm	1050mm	600mm
16/18mtr	4" CL-C	600mm	1070mm	600mm
25.00mtr	4" CL-C	600mm	1050mm	1150mm



PVC CONDUIT ACCESSORIES AS PER ASTM/NEMA STANDARD

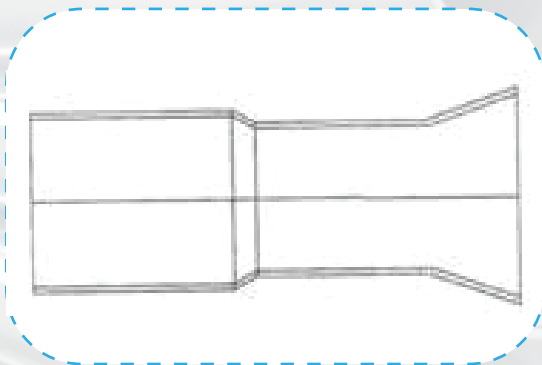
PVC - COUPLER- ASTM F 512-12

Size	M1	SH	N
Dia	(Max) mm	(Max) mm	(Max) mm
1	30.55	1.77	1.58
1½	57.94	1.77	1.58
2	69.45	1.90	2.38
3	100.80	1.93	2.77
3½	114.30	2.20	2.77
4	127.79	2.46	2.77
5	158.75	2.99	3.17
6	190.50	3.55	3.17



PVC - BELL MOUTH- ASTM F 512-12

Size	M1	SH	N
Dia	(Max) mm	(Max) mm	(Max) mm
1	57.15	1.77	4.76
1½	63.50	1.77	4.76
2	78.97	1.90	7.93
3	104.77	1.93	7.93
3½	117.47	2.20	7.93
4	135.73	2.46	11.11
5	162.72	2.99	11.11
6	188.12	3.55	11.11



PVC - SOCKET END BELL MOUTH ASTM F 512-12

Size	M1	SH	N
Dia	(Max) mm	(Max) mm	(Max) mm
2	108.74	70.64	55.19
3	134.14	58.73	81.48
3½	120.65	76.20	93.16
4	139.70	76.20	104.87
5	165.10	107.95	131.95
6	190.50	82.55	157.27



PVC DUCT - BELLMOUTH

BS 3506, CL-C & CL-D

SIZE (DIA)	O.D (MM)	I.D (MM)	L (MM)	Wall Thickness (mm)
2"	115.0	110.0	169	2.5
3"	168.0	161.0	222	3.5
4"	210.0	201.0	265	4.5
6"	263.2	250.0	340	6.6
8"	330.6	315.0	370	7.8

PVC DUCT - COUPLER

BS 3506, CL-C & CL-D

SIZE	Socket dia	L	L1	L2
Dia	ID (mm)	(mm)	(mm)	(mm)
2"	60.5	116.5	50	14
3"	89.1	162	65	30
4"	114.5	172	76	24
6"	168.5	258	116	34
8"	219.4	294	132	45



BSEN 1401

SIZE	Socket dia	L	L1	L2
Dia	ID (mm)	(mm)	(mm)	(mm)
2"	56	116.5	50	14
3"	82	162	65	30
4"	110	172	76	24
6"	160	258	116	34
8"	200	294	132	45



PVC DOUBLE BELL COUPLINGS Rubber Ring Sealed Sockets



DIN8062 / BSEN 1452

CL-6, 10 & 16

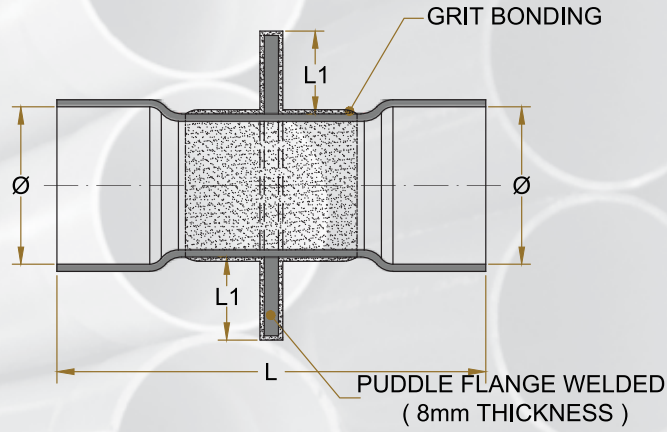
Pipe dia	Register coupling	Repair Coupling
(d) mm	L mm	L mm
110	350	350
160	410	410
200	450	450
225	460	460
280	500	500
315	570	570

BS3505 / BS3506

CL-C, D & E

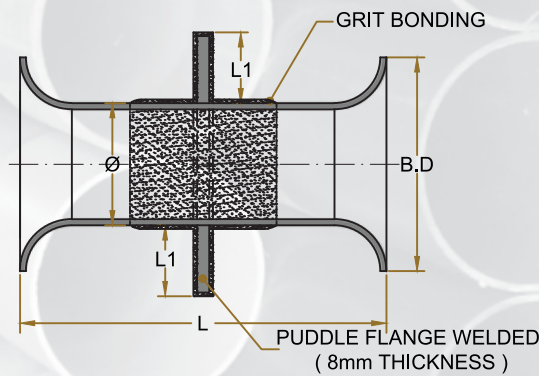
Pipe dia	Register coupling	Repair Coupling
(d) mm	L mm	L mm
3"	350	350
4"	410	410
6"	450	450
8"	460	460
10"	500	500

uPVC CLASS 'C' SOCKET X SOCKET WITH PUDDLE FLANGE & GRIT BONDING



uPVC CLASS 'C' SOCKET x SOCKET WITH PUDDLE FLANGE & GRIT BONDING 4" 6" & 8"			
SL.NO	DIA (Ø)	LENGTH (L)	L 1
1	4" C	200/250/300 mm	50 mm
2	6" C	200/250/300 mm	50 mm
3	8" C	200/250/300 mm	50 mm

uPVC CLASS 'C' BELL MOUTH X BELL MOUTH WITH PUDDLE FLANGE & GRIT BONDING

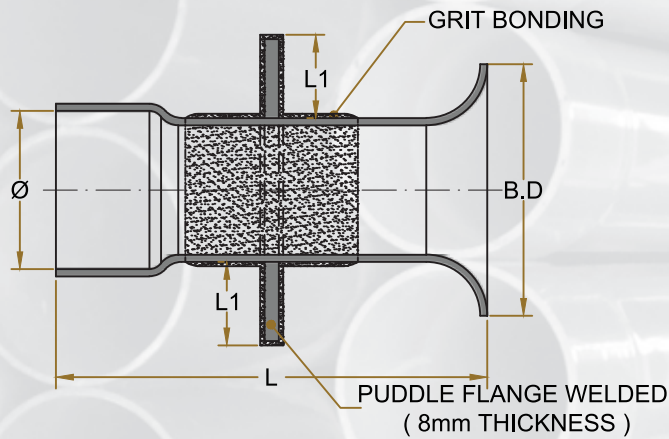


uPVC CLASS 'C' BELL MOUTH BELL MOUTH WITH PUDDLE FLANGE & GRIT BONDING 4" 6" & 8"				
SL.NO	DIA (Ø)	LENGTH (L)	L 1	B.D
1	4" C	200/250/300 mm	50 mm	162 mm
2	6" C	200/250/300 mm	50 mm	232 mm
3	8" C	200/250/300 mm	50 mm	275 mm



uPVC CLASS 'C' BELL MOUTH X SOCKET WITH PUDDLE FLANGE & GRIT BONDING

uPVC CLASS 'C' BELL MOUTH X SOCKET WITH PUDDLE FLANGE & GRIT BONDING 4" 6" & 8"				
SL.NO	DIA (O)	LENGTH (L)	L 1	B.D
1	4" C	200/250/300 mm	50 mm	162 mm
2	6" C	200/250/300 mm	50 mm	232 mm
3	8" C	200/250/300 mm	50 mm	275 mm



PVC DUCT - END CAPS

BS3506,CL-C&CL-D

SIZE (DIA)	I.D. (MM)	H (MM)
2"	60.50	30
3"	89.10	30
4"	114.50	30
6"	168.50	40
8"	219.40	45



UPVC DRAINAGE END CAP BSEN1401

SIZE (DIA)	I.D. (MM)	H (MM)
2"	60.50	30
3"	89.10	30
4"	114.50	30
6"	168.50	40
8"	219.40	45



SPACERS

Wheel Spacers

Wheel Spacers (Open) for Reinforcing Bars
(Construction/Piling)

A full range of wheel spacers are designed for accurate positioning of vertical reinforcing bars

Size	Item	Colour
25mm	4 to 8	Black
30mm	4 to 12	Black
30mm	4 to 12	Black
40mm	4 to 12	Black
50mm	4 to 12	Black
60mm	4 to 20	Black



Wheel Spacers for Piling

These spacers are specially designed for foundation & piling works

Size	Item	Colour
75mm	Closed Std	Black
75mm	Open Std	Black
75mm	Closed Now	Black
75mm	Open Now	Black
100mm	Closed	Black
75mm	Open	Black
100mm	Closed Heavy Duty	Black
100mm	Closed Heavy Duty	Black
5 Stands	Anchor Spacer	Black
7 Stands	Anchor Spacer	Black

Chair Spacers

Are specially designed for accurate positioning of horizontal reinforcing bars

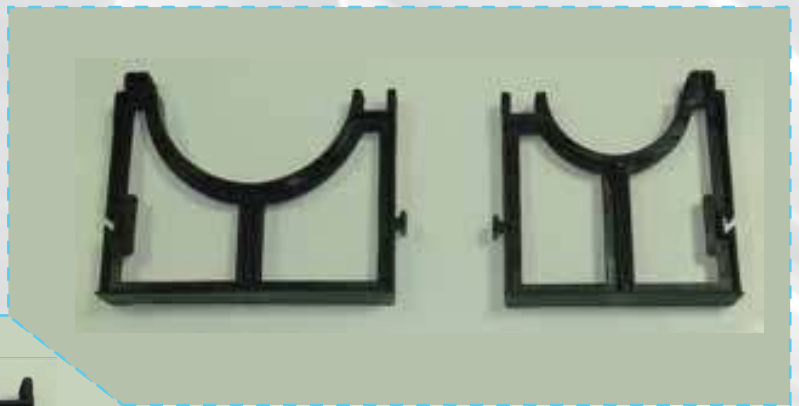
Size	Item	Colour
25mm	4 to 12	Black
30mm	4 to 12	Black
40mm	4 to 12	Black
50mm	4 to 12	Black
60mm	4 to 20	Black
75mm	4 to 26	Black





SPACERS

Base Spacers



Interlock Spacer

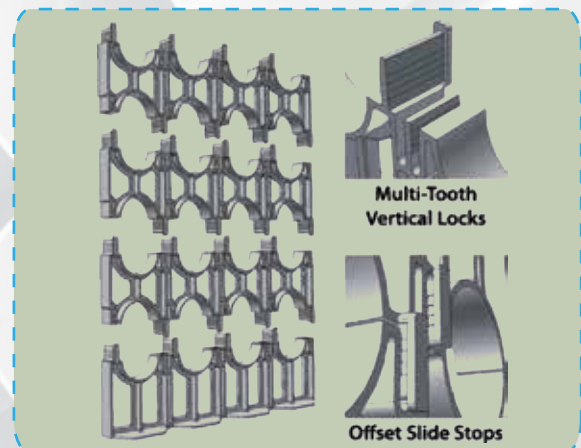
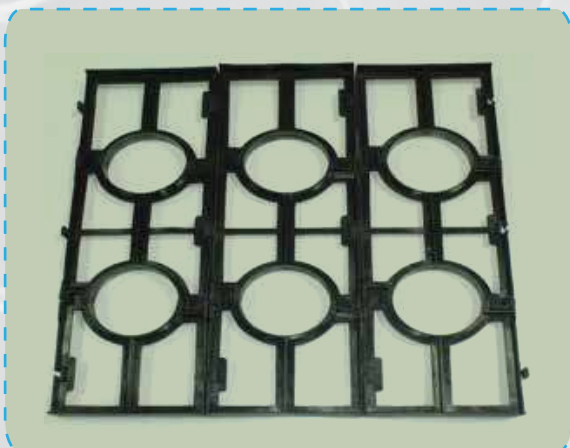


Base Spacers

Size	Unit	Packing	Color	L	H	R
4"	Nos	40 Nos/bag	Grey Cement	150	100	55
6"	Nos	40 Nos/bag	Grey Cement	205	155	207

Interlock Spacer

Size	Unit	Packing	Color	L	H	R
4"	Nos	40 Nos/bag	Grey Cement	100	140	55
6"	Nos	40 Nos/bag	Grey Cement	100	207	207



uPVC Drainage System

Power Plastic uPVC Drainage pipes are manufactured and tested in accordance with the new British - European Standards BS EN which have replaced the Old British Standards for Drainage applications. The new BS EN Standards cover all the sizes and applications of the BS Standards

Mechanical and Physical Characteristic

Characteristic	Requirement	Test Method
Impact Resistance	TIR < 10%	EN 744
Vicat Softening	> 79°C	EN 727
Longitudinal Reversion	< 5%	EN 743
Dichloromethane Acid Resistance	No attack	EN 580
water Tightness of Rubber Ring Joint	No leakage	EN 1277
Elevated Temp. Cycling	No leakage	EN 1055
Long Term Performance of TPE Seals	1.90 days > 1.3 bar 2.100 years > 0.6 bar	prEN 1989
Resistance to internal pressure	No failure during the test 10.0MPa for 1000 hours, at 60°C	EN 921

BSEN-1401-1

(Formerly BS-4660 & BS-5481) uPVC for Underground Drainage & Sewerage

Size	Min.OD	Max.OD	SDR 51		SDR 41		SDR 34	
			SN-2		SN-4		SN-8	
			Min	Max	Min	Max	Min	Max
110	110	110.3	-	-	3.2	3.8	3.2	3.8
125	125	125.3	-	-	3.2	3.8	3.7	4.3
160	160	160.4	3.2	3.8	4.0	4.6	4.7	5.4
200	200	200.5	3.9	4.5	4.9	5.6	5.9	6.7
250	250	250.5	4.9	5.6	6.2	7.1	7.3	8.3
315	315	315.6	6.2	7.1	7.7	8.7	9.2	10.4
355	355	355.7	7.0	7.9	8.7	9.8	10.4	11.7
400	400	400.7	7.9	8.9	9.8	11.0	11.7	13.1
450	450	450.8	8.8	9.9	11.0	12.3	13.2	14.8

For Outside the building structure application area "U" SN2= Ring stiffness of 2KN/m²
SN4 = Ring stiffness of 4KN/m²

Pipe to this specification will be supplied in 4 meter & 5.8 meter with solvent weld socket, rubber ring socket or plain end. Color in Orange.

BSEN 1329 - 1

(BS-4514 uPVC Drainage Pipes for Above Ground Drainage)

Normal Size	B		BD	
	Min. WT	Max. WT	Min. WT	Max. WT
32	3.0	3.5	-	-
36	3.0	3.5	-	-
40	3.0	3.5	-	-
43	3.0	3.5	-	-
50	3.0	3.5	-	-
56	3.0	3.5	-	-
63	3.0	3.5	-	-
75	3.0	3.5	3.0	3.5
80	3.0	3.5	3.0	3.5
82	3.0	3.5	3.0	3.5
90	3.0	3.5	3.0	3.5
100	3.0	3.5	3.0	3.5
110	3.2	3.8	3.2	3.8
125	3.2	3.8	3.2	3.8
140	3.2	3.8	3.5	4.1
160	3.2	3.8	4.0	4.6
180	3.6	4.2	4.4	5.0
200	3.9	4.5	4.9	5.6
250	4.9	5.6	6.2	7.1
315	6.2	7.1	7.7	8.7

BS-5255

mUPVC and ABS Waste Pipes

Normal Size (mm)	W.T. (mm)	O.D. (mm)		Wall Thickness (mm)	
		min	max	min	max
1 1/4" / 36mm	1.80	36.15	36.45	1.80	2.20
1 1/2" / 43mm	1.90	42.75	43.05	1.90	2.30
2" / 56mm	2.00	55.75	56.05	2.00	2.40

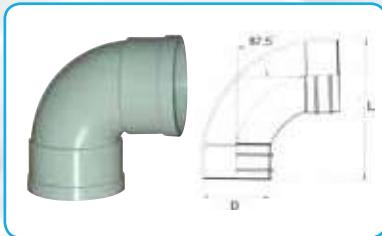
DIN19531 - 10; uPVC Pipes for Drainage Systems Inside Buildings

Normal Size (mm)	W.T. (mm)	O.D. (mm)		Wall Thickness (mm)	
		min	max	min	max
50 mm	1.80	50.00	50.20	1.80	2.20
75mm	1.80	75.00	75.30	1.80	2.20

U-PVC solvent weld drainage system

WASTE, SOIL, VENT AND UNDERGROUND

Equivalent to BSEN 1329 & BSEN 1401



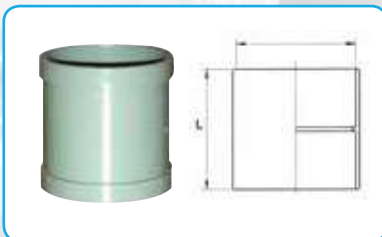
Elbow 90°

Code	Nom. Size	Height	Width	Length	Dimensions	Colour
E9015	1 1/2"	090	090	052	43mm	G
E902	2"	102	102	063	56mm	G
E903	3"	152	153	092	82mm	G
E904	4"	180	180	120	110mm	G & O
E906	6"	244	245	172	160mm	G & O



Elbow 45°

Code	Nom. Size	Height	Width	Length	Dimensions	Colour
E4515	1 1/2"	078	068	052	43mm	G
E452	2"	096	084	063	56mm	G
E453	3"	150	127	092	82mm	G
E454	4"	165	155	120	110mm	G & O
E456	6"	260	215	172	160mm	G & O



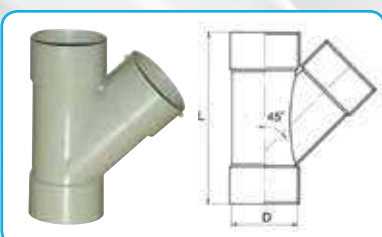
Coupler (Socket)

Code	Nom. Size	Height	Width	Length	Dimensions	Colour
S15	1 1/2"	048	052	052	43mm	G
S2	2"	063	063	063	56mm	G
S3	3"	092	092	092	82mm	G
S4	4"	100	119	119	110mm	G & O
S6	6"	119	172	172	160mm	G & O



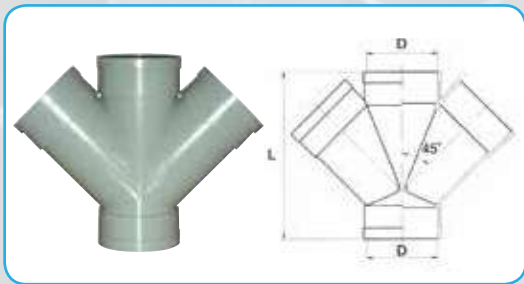
Tee Junction

Code	Nom. Size	Height	Width	Length	Dimensions	Colour
T15	1 1/2"	100	082	052	43mm	G
T2	2"	134	107	063	56mm	G
T3	3"	190	145	092	82mm	G
T4	4"	219	195	182	110mm	G & O
T6	6"	295	246	172	160mm	G & O



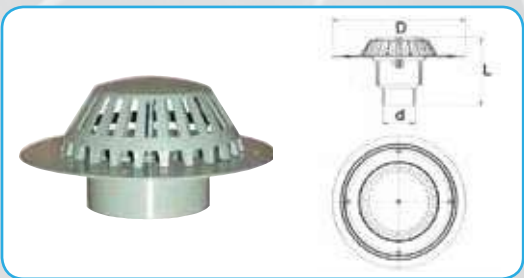
Y Junction

Code	Nom. Size	Height	Width	Length	Dimensions	Colour
Y15	1 1/2"	122	105	052	43mm	G
Y2	2"	152	133	063	56mm	G
Y3	3"	202	180	092	82mm	G
Y4	4"	270	235	119	110mm	G & O
Y6	6"				160mm	G & O



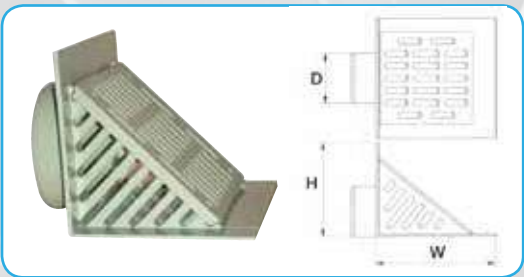
Double Y Junction

Code	Nom. Size	Height	Width	Length	Dimensions	Colour
DY4	4"	270	350	120	110mm	G & O
DY6	6"				160mm	G & O



Rainwater Roof Outlet

Code	Nom. Size	Height	Width	Length	Dimensions	Colour
R03	3"	90.0	178	178	82mm	G
R04	4"	114	238	238	110mm	G



Corner Roof Outlet

Code	Nom. Size	Height	Width	Length	Dimensions	Colour
CR3	3"	154	193	193	82mm	G
CR4	4"	154		193	110mm	G



Floor Trap Gully

Code	Nom. Size	Dimensions	Colour
FT432	4 x 3 x 2"	-	G
FTS	4 x 3 x 1 1/2"	-	G



P - Trap

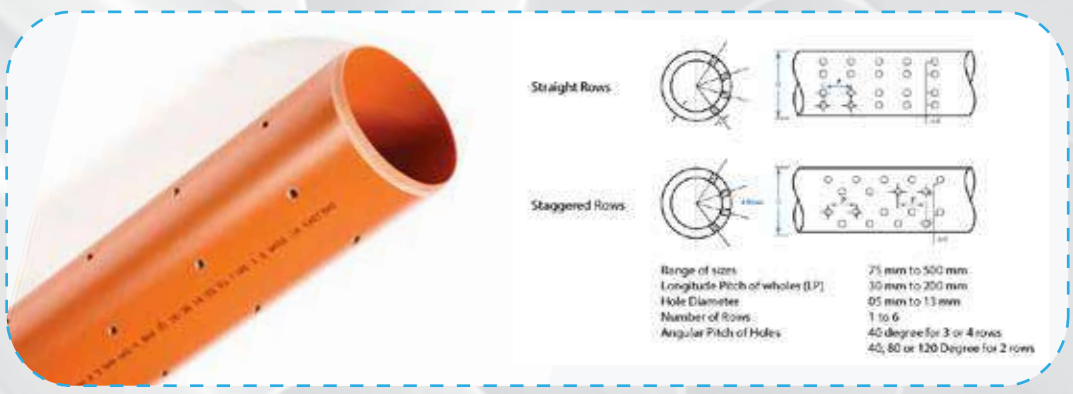
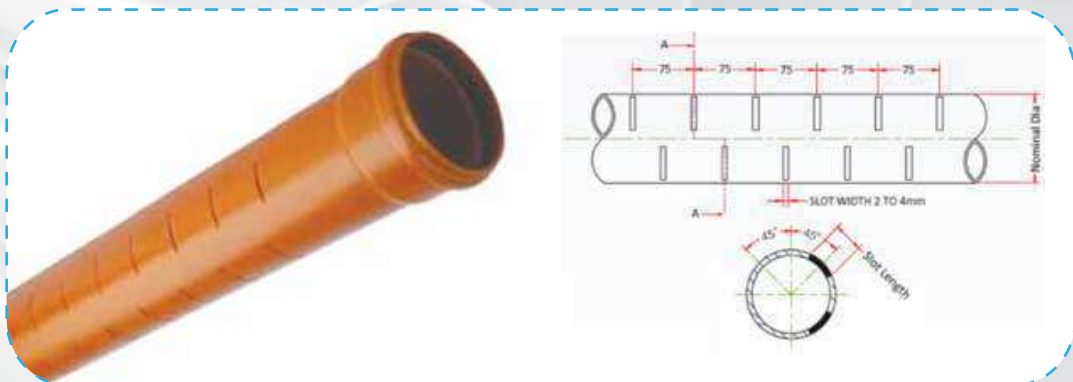
Code	Nom. Size	Dimensions	Colour
PT4	4"	110mm	O



POWER PLASTIC'S FABRICATED PRODUCTS

POWER PLASTICS perforated & slotted UPVC Pipes are manufactured up on request depending on the size and class for multi-purpose applications.

DN (Inch)	Outside dia mm	Thickness mm	Slot Length mm	Slot Width mm	Pitch mm
4	110	3.2	33	2.7	75
6	160	4.1	48	2.7	75
8	200	4.9	59	2.7	75
8	225	10.8	67	2.7	75
10	250	6.1	74	2.7	75
10	280	13.4	83	2.7	75
12	315	7.7	94	2.7	75
12	315	9.2	94	2.7	75
16	400	9.8	119	2.7	75
16	400	19.1	119	2.7	75



Our skilled technicians are able to design, weld, bend, shape, adapt a wide range of Plastics products to precise specifications and many more materials, available up on request.



SPECIAL P-TRAPS



**STREET LIGHTING
 CONDUIT BENDS**



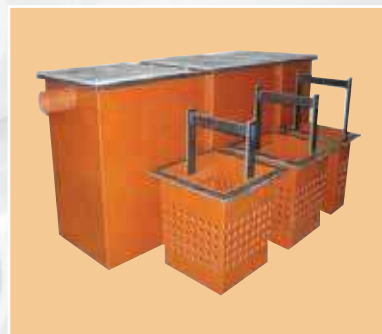
GULLY TRAPS



GREASE TRAP TYPE A



GREASE TRAP TYPE B



GREASE TRAP TYPE C



DOUBLE WAY GULLY TRAP



**FABRICATED REDUCER
 Y-BRANCHES & TEES**



FABRICATED CROSS TEE



DRY MANHOLES



CATCH BASINS



SAND TRAPS



BOSS CONNECTOR



TRAP CONNECTOR



PUDDLE FLANGES



FABRICATED COUPLER



REPAIR SOCKETS



BELL MOUTH FLANGES



LONG RADIUS BENDS



INTERCEPTORS



**FABRICATED END CAPS
AND PLUGS**

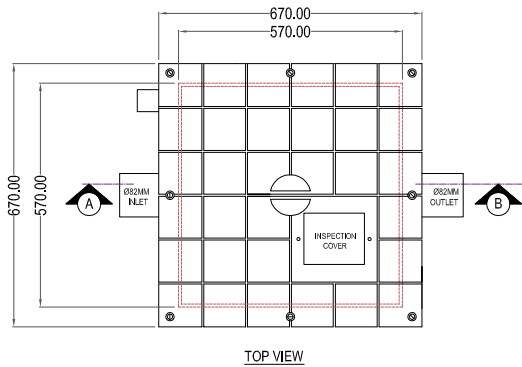
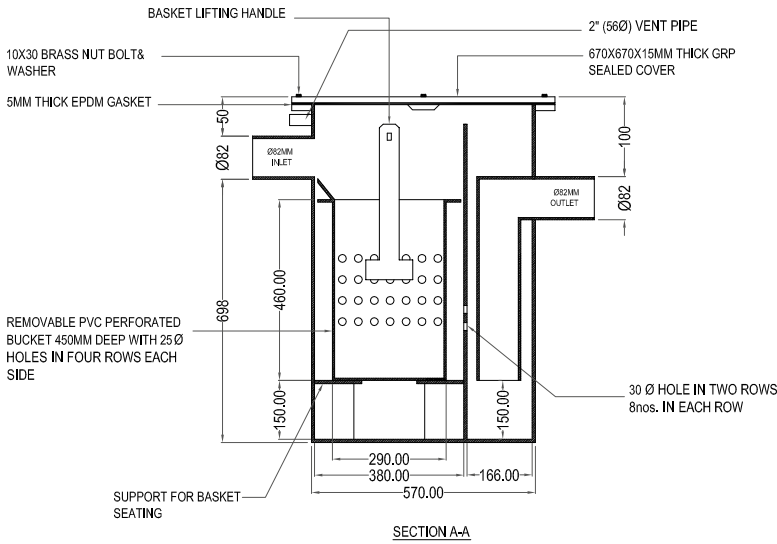
GREASE TRAP TYPE-A

As per
DUBAI & SHARJAH MUNICIPALITIES



SPECIFICATIONS

OUTER BODY	8mm THICK RIGID PVC SHEET BS - 5481
INNER BUCKET	8mm THICK RIGID PVC SHEET BS - 5481
INLET PIPE	82mmØ UPVC PIPE BS - 4660
OUTLET PIPE	82mmØ UPVC PIPE BS - 4660
VENT PIPE	55mmØ PVC PIPE BS - 5255
BUCKET SUPPORT	100 x 380 x 150mm HL RIGID PVC BS - 5481
TOP COVER	965mm x 665mm x 15mm H.DUTY GRP COVER
BUCKET HANDLE	50mm x 22mm x 630mm LONG RIGID PVC BAR
FLOW RATE	4.4 LTR/SEC
STANDING WATER CAPACITY	201.44 LTR
DRAWING	POWER PLASTIC FABRICATION
DESIGNED BY	DUBAI MUNICIPALITY DRAINAGE & IRRIGATION DEPT. CONTROL & DEVELOPMENT UNIT



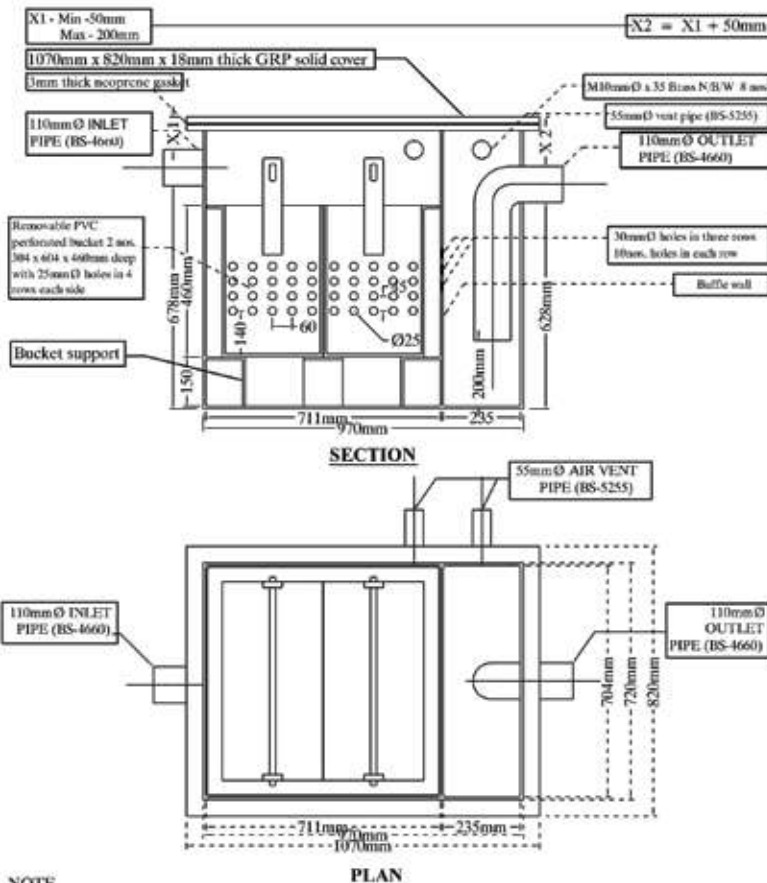
GREASE TRAP TYPE - B

As per
DUBAI & SHARJAH MUNICIPALITIES

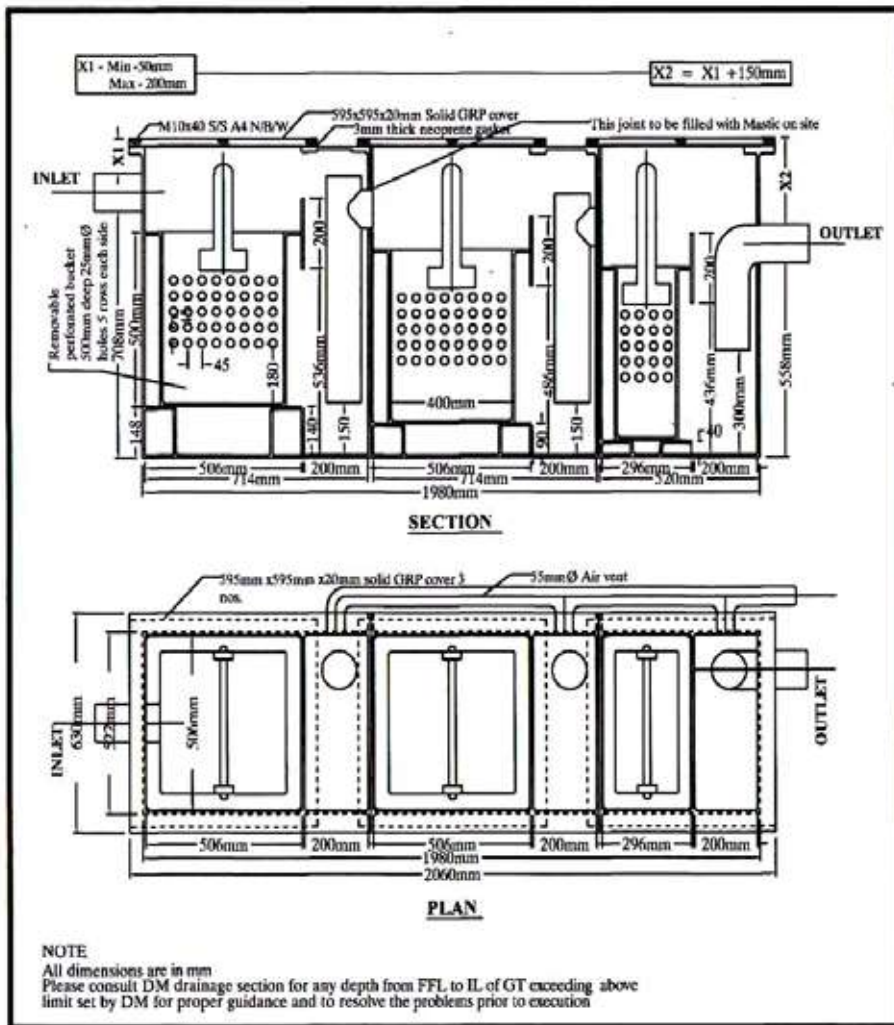


SPECIFICATIONS

OUTER BODY	8mm THICK RIGID PVC SHEET BS - 5481
INNER BUCKET	8mm THICK RIGID PVC SHEET BS - 5481
INLET PIPE	110mmØ UPVC PIPE BS - 4660
OUTLET PIPE	110mmØ UPVC PIPE BS - 4660
VENT PIPE	55mmØ PVC PIPE BS - 5255
BUCKET SUPPORT	100 x 600 x 150mm HL RIGID PVC BS - 5481
TOP COVER	1070mm x 820mm x 20mm H.DUTY GRP COVER
BUCKET HANDLE	50mm x 22mm x 630mm LONG RIGID PVC BAR
FLOW RATE	8 LTR/SEC
Manufacturer	POWER PLASTIC FACTORY LLC TEL : 06-7436441 FAX : 06-7436442
DESIGNED BY	DUBAI MUNICIPALITY DRAINAGE & IRRIGATION DEPT. CONTROL & DEVELOPMENT UNIT



NOTE
All dimensions are in mm
Please consult DM drainage section for any depth from FFL to IL of GT exceeding above limit set by DM for proper guidance and to resolve the problems prior to execution



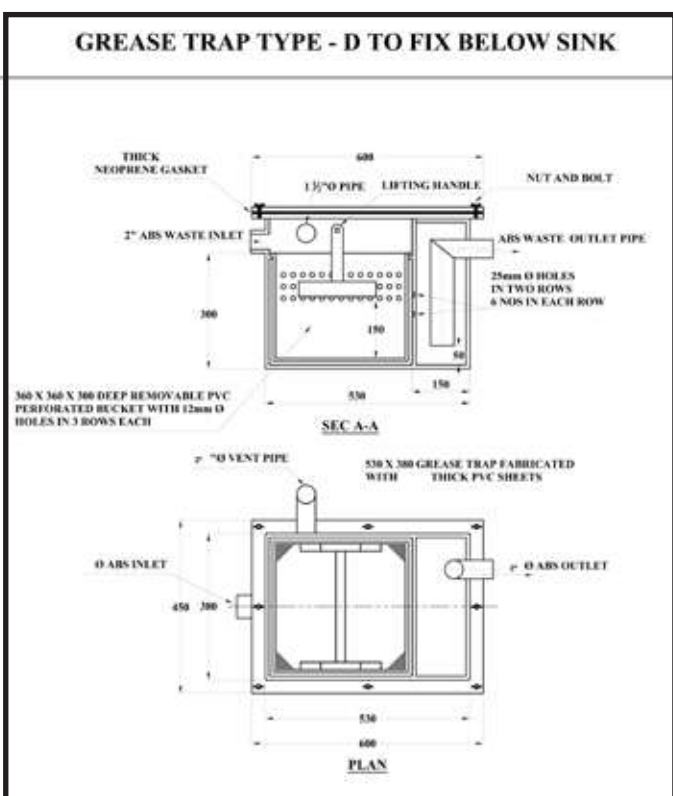
GREASE TRAP TYPE-C

As per
 DUBAI & SHARJAH MUNICIPALITIES



SPECIFICATIONS

OUTER BODY	8mm THICK RIGID PVC SHEET BS - 5481
INNER BUCKET	8mm THICK RIGID PVC SHEET BS - 5481
INLET PIPE	160mm Ø UPVC PIPE BS - 4668
OUTLET PIPE	160mm Ø UPVC PIPE BS - 4668
VENT PIPE	55mm Ø PVC PIPE BS - 5255
BUCKET SUPPORT	100 x 566 x 150mm Hi. RIGID PVC BS - 5481
TOP COVER	595 x 595 x 20mm H.DUTY GRP COVER (3 nos.)
BUCKET HANDLE	50mm x 22mm x 630mm LONG RIGID PVC BAR
FLOW RATE	8 LTR/SEC
MANUFACTURER	POWER PLASTIC FABRICATION SECTION
DESIGNED BY	DUBAI MUNICIPALITY DRAINAGE & IRRIGATION DEPT. CONTROL & DEVELOPMENT UNIT



GREASE TRAPS TECHNICAL INFORMATIONS

	TYPE "A"	TYPE "B"	TYPE "C"	TYPE "D"
1. INLET/OUTLET PIPE SIZE	3"82MM	4"110MM	4"110MM	2"756MM
2. FLOW RATES IN LTRS/SEC (DISCHARGE RUNNING FULL AT 1:100 GRADIENT)	4.4LT/SEC	8LT/SEC	8LT/SEC	2LT/SEC
3. STANDING WATER CAPACITY	201.44 LTR	435.5 LTR	580 LTR	60 LTR
4. WEIGHT OF PVC BASKET EACH WHEN WEIGHED EMTY	11.80 KGS	15.20 KGS	17.60 KGS	4.50 KGS
5. DITTO FILLED WITH WATER	24.20 KGS	33.00 KGS	33.60 KGS	16.50 KGS
6. TOTAL SHIPPING WEIGHT	67.80 KGS	116.60 KGS	193.00 KGS	27.20 KGS



THE PP-R AND PEX PIPING SYSTEM FOR HOT AND COLD WATER **BRAND:- POWER therm**

Polypropylene Random (PP-R) Offers basic properties which suit its use in many application. The main advantage of this is we can avoid copper, galvanized and the other metallic pipe for hot water. This can use for both hot water & cold water. So it is easy for plumbing work and getting multiple advantages. Power therm pipes & fitting are suitable for potable water distribution systems in additions of a wide range of hydro-sanitary applications. It can use for oil, gas and most of the chemicals. PP-R 80 pipes and fittings are quick and easy to joint with socket welding that provides homogeneous leak free joints. Polypropylene Random copolymer type 3 raw materials having low melt flow rate, high molecular weight and good flexibility. Power therm keeping German and international standards and quality. Raw material of PP-R used in Power therm pipes & fittings are procured from the world's proven highest quality raw materials producers.

FIELDS OF APPLICATION:-

THE POLYPROPYLENE SYSTEM from **Power therm** can be used for:

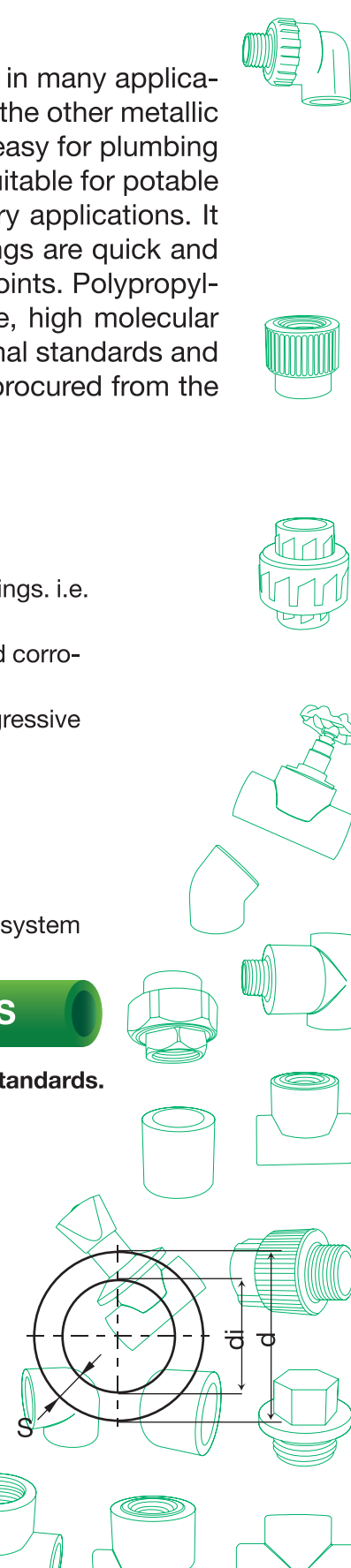
- Hot and cold portable water piping networks in residential and commercial buildings. i.e. hospitals, hotels, offices, school buildings, shopping malls etc.
- Chilled water networks in air conditioning system, as an effective light weight and corrosion free substitute for steel pipes.
- Piping networks for all types of industrial applications for the delivery of aggressive chemicals including many acidic, alkaline and corrosive chemicals.
- Irrigation systems for gardens and agriculture.
- Piping networks for rainwater utilization systems.
- Piping networks for swimming pool facilities.
- Factories with high-pressure water and compressed air circuits.
- Hot pipe networks such as small and centralized water heater, central heating system and radiator connections etc.

PRODUCT RANGE WITH STANDARD SPECIFICATIONS

NPPI manufactured PP-R Pipes Power therm in accordance with German standards.

Power therm Pipe SDR 6 PP-R 80 PN 20 Pipe Series 6 acc. To DIN 8077/78

Art. No	Dimension	Packing Unit	Diameter	Wall Thickness	Internal Diameter	Water Content
PT20-20	20 mm	100	20	3.4	13.2	0.137
PT20-25	25 mm	100	25	4.2	16.6	0.216
PT20-32	32 mm	40	32	5.4	21.2	0.353
PT20-40	40 mm	40	40	6.7	26.6	0.556
PT20-50	50 mm	20	50	8.4	33.2	0.866
PT20-63	63 mm	20	63	10.5	42	1.385
PT20-75	75 mm	20	75	12.5	50	1.963
PT20-90	90 mm	12	90	15	60	2.827
PT20-110	110 mm	8	110	18.4	73.2	4.208

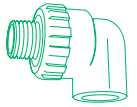




Power therm PP-R FITTINGS & ACCESSORIES

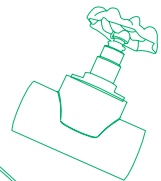
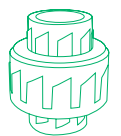
Socket

Art No.	Dimension	Packing Unit
S-20	20 mm	10pc
S-25	25 mm	10pc
S-32	32 mm	5pc
S-40	40 mm	5pc
S-50	50 mm	5pc
S-63	63 mm	1pc
S-75	75 mm	1pc
S-90	90 mm	1pc
S-110	110 mm	1pc



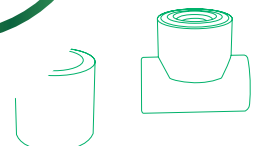
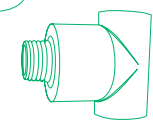
Elbow 90

Art No.	Dimension	Packing Unit
E90-20	20 mm	10pc
E90-25	25 mm	10pc
E90-32	32 mm	5pc
E90-40	40 mm	5pc
E90-50	50 mm	5pc
E90-63	63 mm	1pc
E90-75	75 mm	1pc
E90-90	90 mm	1pc
E90-110	110 mm	1pc



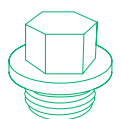
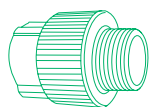
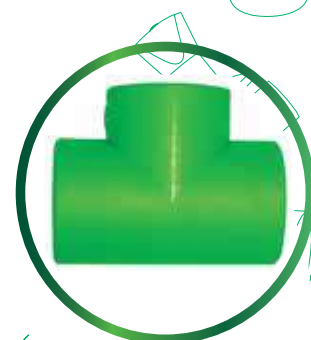
Elbow 45

Art No.	Dimension	Packing Unit
E45-20	20 mm	10pc
E45-25	25 mm	10pc
E45-32	32 mm	5pc
E45-40	40 mm	5pc
E45-50	50 mm	5pc
E45-63	63 mm	1pc
E45-75	75 mm	1pc
E45-90	90 mm	1pc
E45-110	110 mm	1pc



Tee

Art No.	Dimension	Packing Unit
T-20	20 mm	10pc
T-25	25 mm	10pc
T-32	32 mm	5pc
T-40	40 mm	5pc
T-50	50 mm	5pc
T-63	63 mm	1pc
T-75	75 mm	1pc
T-90	90 mm	1pc
T-110	110 mm	1pc





PE-X (CROSS LINKED POLYETHYLENE)

BRAND:- POWER PEX

POWER PEX pipe technology based on great products of polyethylene pipes, hot and cold-water installations, POWER PEX Plastic Pipes are suitable for different floors, floors and wall types of flexible structures; They can be easily used in the radiator systems, which are called as mobile installations, Cross Linked PEX Piping Systems are used in business centers, residences, sports halls, schools, laboratories, places of worship, cinemas, etc. It is the most accurate installation solution for heating different spaces. This piping system combines the advantage of both PP-R and manifold system. The manifold can select according to number of outlets equal to the number of hot & cold-water tops in each circuit respectively.

Dimensions of Power PEX Pipes:

POWER PEX Pipes are manufactured according to the German Standard DIN 16892 and DIN 16893 which list the general requirements for PEX pipes. The following table shows the dimensions of pipes.

Outside Diameter (mm)	Series	
	1	2
	Pressure Rating	
	PN 12.5	PN 20
	SDR	
	11.08	7.4
	W.T. (mm)	W.T. (mm)
16	1.8	2.2
20	1.9	2.8
25	2.3	3.5
32	2.9	4.4



Main advantages :

- Simple installation
- High temperature resistance
- High flexibility
- Cost-effective
- High stability
- Corrosion Free

Application :

- Hot and cold water transportation
- Under- floor, wall and ceiling heating systems



POLYETHYLENE PIPES

PE pipes is a competitive pipes

PE pipes is a competitive pipe because it is characterizing by light, stable, weather - resistant, water proof and easy to handle. PE pipe installations are the most competitive by key advantages.

- Ease of handling due to flexibility and light weight
- Leak-tight installation due to excellent fusion-welding possibilities
- Long life with low operational cost
- Capability for relining pipelines
- Possibility for on-site extrusion, alternative installations
- No limitations to pH-value of the water (no corrosion)
- Taste and odor neutral
- Bacteriologically neutral
- Chemical resistance



PHYSICAL & MECHANICAL PROPERTIES OF HDPE MATERIAL

The following table shows the main physical, mechanical and chemical properties of polyethylene material:

Property	Test Method	Units	PE 80	PE 100
Density (Compound)	ISO 1183	Kg/m ³	956	959
Melt Flow Rate (190°C/5kg)	ISO 1133	g/10 min	0.3	0.25
Tensile Stress at Yield (50mm/min)	ISO 527-2	MPa	22	25
Elongation at Break	ISO 527-2	%	> 600	> 600
Charpy Impact Strength, notched	ISO179/1eA	kJ/m ²	14	16
Carbon Black Content	ASTM D 1603	%	2-2.5	2-2.5
Vicat Softening Point	ASTM D 1525	°C	118	122
Brittleness Temperature	ASTM D 746	°C	< -70	< -70
ESCR (10% Igepal), F50	ASTM D 1693A	Hrs.	> 10.000	> 10.000
Thermal Conductivity	DIN 52612	W/m ² K	0.4	0.4
Linear Thermal Expansion	ASTM D 696	mm/mm/k	1.5x10 ⁻⁴	1.5x10 ⁻⁴

PIPE SDR* AND RATED PRESSURE RELATIONSHIP

Material	Design stress N/mm ²	NOMINAL PRESSURE (PN)					
		4	6	8	10	12.5	16
PE 100**	8.0	SDR 41	SDR 26	SDR 21	SDR 17	SDR 13.6	SDR 11
PE 80**	6.3	SDR 33	SDR 21	SDR 17	SDR 13.6	SDR 11	SDR 9

*SDR (standard dimensional ratio)= OD/e where OD= outside diameter (mm) e= wall thickness (mm)
Example 110mm OD pipe of 10mm wall thickness SDR=110/10=11

**As per ISO 4427 : 2007

The above is for use in designing water distribution systems with a safety factor 1.25 as per ISO 4427 or DIN 8074 standards. For use with gas distribution systems please review ISO 4437 specification tables on following pages

PRESSURE REDUCTION CO-EFFICIENTS FOR PE 100 & PE 80 AS PER ISO 4427 - 2:2007 (E)

PE 100						PE 80					
Temp (°C)	20	25	30	35	40	Temp (°C)	20	25	30	35	40
Pressure Reduction Co-efficient	1	0.93	0.87	0.8	0.74	Pressure Reduction Co-efficient	1	0.93	0.87	0.8	0.74
SDR	Pressure (bar)					SDR	Pressure (bar)				
7.4	25	23.3	21.8	20.0	18.5	6	25	23.3	21.8	20.0	18.5
9	20	18.6	17.4	16.0	14.8	7.4	20	18.6	17.4	16.0	14.8
11	16	14.9	13.9	12.8	11.8	9	16	14.9	13.9	12.8	11.8
13.6	12.5	11.6	10.9	10.0	9.3	11	12.5	11.6	10.9	10.0	9.3
17	10	9.3	8.7	8.0	7.4	13.6	10	9.3	8.7	8.0	7.4
21	8	7.4	7.0	6.4	5.9	17	8	7.4	7.0	6.4	5.9
26	6	5.6	5.2	4.8	4.4	21	6	5.6	5.2	4.8	4.4
33	5	4.7	4.4	4.0	3.7	26	5	4.7	4.4	4.0	3.7
41	4	3.7	3.5	3.2	3.0	33	4	3.7	3.5	3.2	3.0
						41	3.2	3.0	2.8	2.6	2.4

Parameter Selection

- Starting from known pipe size and pressure rating.
- Find SDR of required pressure rating (table1) make material choice PE 100 or PE 80.
- Cross tabulate SDR against pipe size to give wall thickness (Table 3).
- Review temperature reduction factors in relation to expected environmental conditions and pressure rating (Table 2).

HDPE Pipes According to ISO 4427 - 2 : 2007(E) / DIN-8074 / BSEN 12201 : 2 : 2003

SDR	6	7.4	9	11	13.6	17	21	26	33	41
Pipe Series (S)	2.5	3.2	4	5	6.3	8	10	12.5	16	20
Nominal Pressure (P N) ^a (bar)										
PE 80	PN 25	PN 20	PN 16	PN 12.5	PN 10	PN 8	PN 6 ^c	PN 5	PN 4	PN 3.2
PE 100	-	PN 25	PN 20	PN 16	PN 12.5	PN 10	PN 8	PN 6 ^c	PN 5	PN 4
Nominal size / OD (mm)	Wall Thickness ^e min (mm)									
20	3.4	3.0	2.3 ^b	2.0	-	-	-	-	-	-
25	4.2	3.5	3.0	2.3 ^b	2.0 ^b	-	-	-	-	-
32	5.4	4.4	3.6	3.0	2.4	2.0	-	-	-	-
40	6.7	5.5	4.5	3.7	3.0	2.4	2.0	-	-	-
50	8.3	6.9	5.6	4.6	3.7	3.0	2.4	2.0	-	-
63	10.5	8.6	7.1	5.8	4.7	3.8	3.0	2.5	-	-
75	12.5	10.3	8.4	6.8	5.6	4.5	3.6	2.9	-	-
90	15.0	12.3	10.1	8.2	6.7	5.4	4.3	3.5	-	-
110	18.3	15.1	12.3	10.0	8.1	6.6	5.3	4.2	-	-
125	20.8	17.1	14.0	11.4	9.2	7.4	6.0	4.8	-	-
140	23.3	19.2	15.7	12.7	10.3	8.3	6.7	5.4	-	-
160	26.6	21.9	17.9	14.6	11.8	9.5	7.7	6.2	-	-
180	29.9	24.6	20.1	16.4	13.3	10.7	8.6	6.9	-	-
200	33.2	27.4	22.4	18.2	14.7	11.9	9.6	7.7	-	-
225	37.4	30.8	25.2	20.5	16.6	13.4	10.8	8.6	-	-
250	41.5	34.2	27.9	22.7	18.4	14.8	11.9	9.6	-	-
280	46.5	38.3	31.3	25.4	20.6	16.6	13.4	10.7	-	-
315	52.3	43.1	35.2	28.6	23.2	18.7	15.0	12.1	9.7	7.7
355	59.0	48.5	39.7	32.2	26.1	21.1	16.9	13.6	10.9	8.7
400	-	54.7	44.7	36.4	29.4	23.7	19.1	15.3	12.3	9.8
450	-	61.5	50.3	40.9	33.1	26.7	21.5	17.2	13.8	11.0
500	-	-	55.8	45.4	36.8	29.7	23.9	19.1	15.3	12.3
560	-	-	62.5	50.8	41.2	33.2	26.7	21.4	17.2	13.7
630	-	-	70.3	57.2	46.3	37.4	30.0	24.1	19.3	15.4

^a = PN values are based on C = 1.25

^b = The calculated value of e_{min} according to ISO 4065 is rounded up to the nearest value of either 2.0, 2.3 or 3.0. This is to satisfy certain national requirements. For practical reasons, a wall thickness of 3.0mm is recommended for electrofusion joining and lining applications

^c = Actual calculated values are 6.4 bar for PE 100 and 6.3 bar for PE 80

1 bar = 0.1 MPa; 1MPa = 10⁵a; 1MPa = 1 N/mm²

LDPE for irrigation systems according to BS 1972

Nominal Size Inch	Outside diameter mm		Wall thickness mm					
			Class B 6.1 kgf/cm		Class C 9.1 kgf/cm		Class D 12.2 kgf/cm	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1/2"	21.2	21.5	-	-	2.7	3.0	3.4	3.7
3/4"	26.6	26.9	2.3	2.6	3.4	3.7	4.3	4.7
1"	33.4	33.7	3.0	3.3	4.2	4.6	5.4	5.9
1 1/4"	42.1	42.5	3.7	4.1	5.3	5.8	6.8	7.5
1 1/2"	48.1	48.5	4.3	4.7	6.1	6.7	7.8	8.6
2"	60.1	60.6	5.3	5.8	7.6	8.4	-	-
3"	88.6	89.3	7.8	8.6	11.2	12.3	-	-
4"	113.9	114.7	10.0	11.0	-	-	-	-

Material: LDPE
Color: Black
Length: sizes from 1/2" to 1" are available in coils of 100 & 200 & 300 meters. sizes from 1 1/4" to 4" are available in coils of 100 meters. Different length can be supplies on request.

LDPE for irrigation systems according to BS 3284

Nominal Size Inch	Outside diameter mm		Wall thickness mm			
			Class C 9.1 kgf/cm		Class D 12.2 kgf/cm	
	Min.	Max.	Min.	Max.	Min.	Max.
1/2"	21.2	21.5	1.8	2.0	2.3	2.6
3/4"	26.6	26.9	2.3	2.6	2.9	3.2
1"	33.4	33.7	2.8	3.1	3.7	4.1
1 1/4"	42.1	42.5	3.6	4.0	4.6	5.1
1 1/2"	48.1	48.5	4.1	4.5	5.3	5.8
2"	60.1	60.6	5.1	5.6	6.6	7.3
3"	88.6	89.3	7.5	8.2	9.7	10.7
4"	113.9	114.7	9.6	10.6	-	-

Material: LDPE
Color: Black
Length: sizes from 1/2" to 1" are available in coils of 100 & 200 & 300 meters. sizes from 1 1/4" to 4" are available in coils of 100 meters. Different length can be supplies on request.

POWER Plastics HDPE drainage pipes and fittings are manufactured according to the European Standard EN1519-1 which supersedes the German Standards DIN19535-1 and DIN19535-2.

HDPE drainage pipes according to EN 1519-1

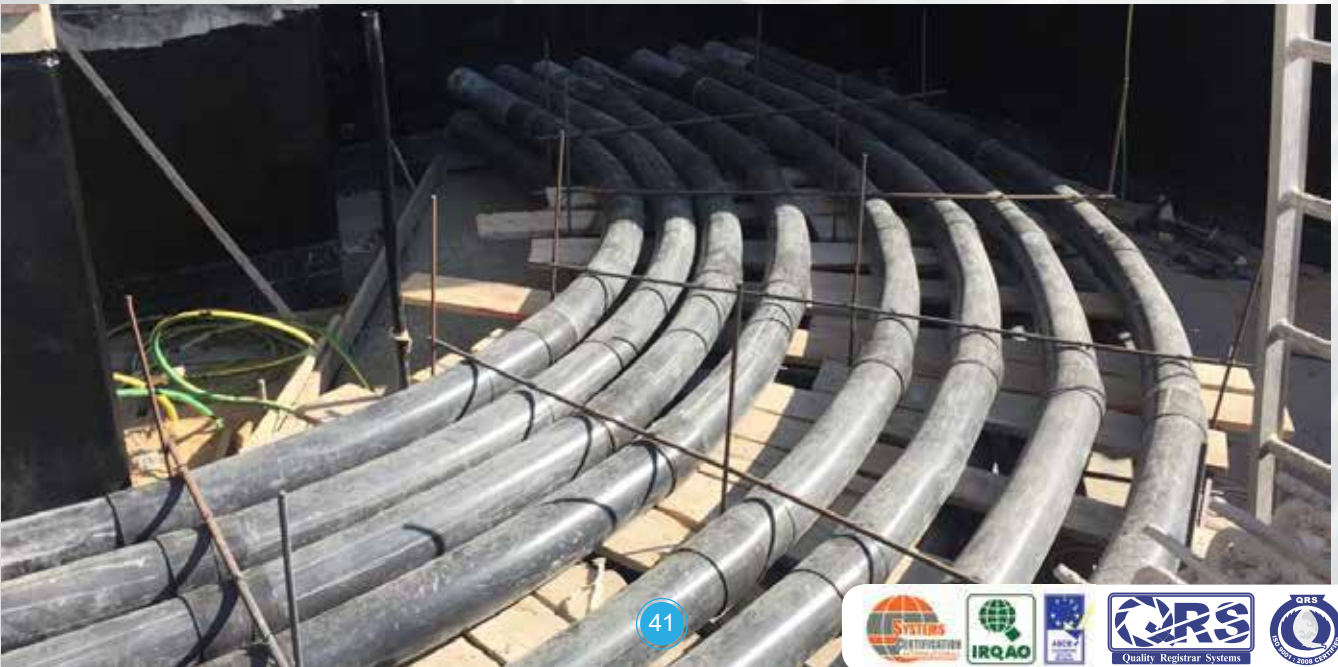
Nominal Outside Diameter (mm)	Mean Outside Diameter (mm)		Wall Thickness (mm)		Wall Thickness (mm)	
			Series S 16**		Series S 12.5	
	Min	Max	Min	Max	Min	Max
32	32.0	32.3	3.0	3.5	3.0	3.5
40	40.0	40.4	3.0	3.5	3.0	3.5
50	50.0	50.5	3.0	3.5	3.0	3.5
56	56.0	56.5	3.0	3.5	3.0	3.5
63	63.0	63.6	3.0	3.5	3.0	3.5
75	75.0	75.7	3.0	3.5	3.0	3.5
80	80.0	80.8	3.0	3.5	3.1	3.6
90	90.0	90.9	3.0	3.5	3.5	4.1
100	100.0	100.9	3.2	3.8	3.8	4.4
110	110.0	111.0	3.4	4.0	4.2	4.9
125	125.0	125.2	3.9	4.5	4.8	5.5
160	160.0	160.5	4.9	5.6	6.2	7.1
200	200.0	201.8	6.2	7.1	7.7	8.7
250	250.0	252.0	7.7	8.7	9.6	10.8
315	315.0	317.9	9.7	10.9	12.1	13.6

Notes:

Series 16 (S 16) is suitable for application area inside buildings and outside buildings fixed on the wall (application area B).

Series 12.5 (S 12.5) is suitable for application area under and within 1 metre from the building where the pipes and fitting are underground and connected to the soil and waste discharge system of the building (application area D).

Project Site Installation Works



Chemical Resistance of uPVC pipe

Chemicals	Concentration %	Temperature °F (°C)			
		68 (20)	104 (40)	140 (60)	176 (80)
Acetaldehyde	100	NG	-	NG	-
»	40	-	G	-	NG
Acetaldehyde	100	G	NG	-	-
»	25	E	E	G	E
»	25-60	E	E	E	-
»	80	E	G	G	-
»	85	-	-	-	NG
» (crude)	95	-	G	-	-
Acetic acid anhydride	100	NG	-	NG	-
Acetone	trace	NG	-	-	-
»	100	NG	-	-	-
Adipic acid	sat.	E	-	G	-
Allyl alcohol	96	G	-	NG	-
Alum	19	-	E	G	-
»	sat.	-	-	E	NG
Aluminium chloride	10	-	E	G	-
»	sat.	E	E	E	NG
Aluminium hydroxide	sat.	E	E	-	-
Aluminium sulfate	10	-	E	G	-
»	sat.	-	-	E	NG
Ammonia (gas)	100	-	-	E	-
» (liquid)	100	G	-	-	-
Ammonia water	sat.	-	E	G	NG
Ammonium chloride	10	E	E	G	-
»	sat.	-	-	G	NG
Ammonium fluoride	not more than 20	E	-	G	NG
Ammonium nitrate	10	-	E	G	-
»	sat.	-	-	E	NG
Ammonium sulfide	10	E	E	G	(212°F) NG
»	sat.	E	E	E	(212°F) NG
Amyl acetate	100	NG	-	-	-
Amyl alcohol	100	E	E	-	-
Aniline (pure)	100	NG	-	-	-
»	sat.	NG	-	-	-
Aniline hydrochloride	sat.	G	-	NG	-
Antimony trichloride	90	E	-	-	-
Arsenic acid	10	-	E	G	-
»	80	-	E	G	NG
Barium hydroxide	10	E	E	E	-
Beer		E	E	E	-
Benzaldehyde	0.1	-	-	NG	-
Benzene (Benzol)	100	NG	-	-	-
Benzene	100	-	-	E	-
Benzene sulfanic acid	10	E	E	-	-
Benzoic acid	in all concentrations	E	E	G	(212°F) NG
Bleaching Soln		...	E	G	-
Barax	10	-	E	G	-

Chemicals	Concentration %	Temperature °F (°C)			
		68 (20)	104 (40)	140 (60)	176 (80)
Barax	sat.	-	E	G	-
Boric acid	10	-	E	G	-
»	sat.	-	-	G	-
Bromine (liquid)	100	NG	-	-	-
» (vapor)	trace	G	-	-	-
Butane (gas)	50	E	-	-	-
Butadiene	100	-	-	E	-
Butanol	100	E	E	G	-
Butanol diol	100 or Below	G	-	-	NG
Butanol diol	100 or Below	-	G	-	-
Butyl acetate	100	NG	-	-	-
Butyl Phenol	100	G	-	-	-
Butylene (liquid)	100	(-40F) E	-	-	-
Butyric acid	20	E	-	-	-
»	conc.	NG	-	-	-
Calcium bisulfite	sat.	E	E	-	-
Calcium chloride	10	-	E	G	-
»	sat.	-	-	E	NG
Calcium nitrate	50	-	E	-	-
Carbon dioxide (dry)	100	-	-	E	NG
Ammonia (gas)	In all concentrations	-	E	G	(212°F) NG
» (wet)	under 8 atm.	E	-	-	-
Carbon dioxide saturated in water	100	G	-	NG	-
Carbon tetrachloride	100	-	G	-	-
» (wet gas)	0.5	E	-	-	-
» »	1	G	-	-	-
» »	5	G	-	-	-
Chlorine water	sat.	G	-	-	-
Chloric acid	1	-	E	G	(212°F) NG
»	10	-	E	G	NG
»	20	-	E	G	NG
Chlorosulfonic acid	100	G	-	-	-
Chrome alum	sat.	E	E	-	-
Chrome acid	50	E	E	G	-
Carbon dioxide saturated in water	50/15/35	-	E	G	-
Citric acid	10 or below	-	E	G	-
»	sat.	-	-	E	-
Cresol	90 or below	-	G	-	-
Crotonaldehyde	100	NG	-	-	-
Crude oil (sour)		E	E	-	-
Cupric chloride	sat.	E	-	-	-
Cupric sulfate	10	-	E	G	-
»	sat.	E	-	E	NG
Cyclohexanol	100	NG	-	-	-
Cyclohexanone	100	NG	-	-	-
Dextrin	sat.	E	-	-	-
Diglycolic acid	30	-	-	G	-

E : Excellent G : Good NG : Not Good

Sat. : Saturated comm. : commercial grade
conc: concentrated

Chemical Resistance of uPVC pipe

Chemicals	Concentration %	Temperature °F (°C)			
		68 (20)	104 (40)	140 (60)	176 (80)
Diglycolic acid	sat.	-	-	E	NG
Dimethyl aminee (liquid)	100	(212F) G	-	-	-
Ethyl acetate	100	NG	-	-	-
Ethylene chloride	100	NG	-	-	-
Ethyl ether	100	NG	-	-	-
Ethylene oxide (liquid)	100	(4F) NG	-	-	-
Ethylene glycol	100	E	E	-	-
Ethyl acrylate	100	NG	-	-	-
Ethyl alcohol	In all concentrations	E	G	-	-
»	96	-	-	G	NG
Ethyl alcohol (denaturated with 2 % toluence)	96	E	-	-	-
Fats and Oil		-	E	-	-
Fatty acid	100	-	-	E	-
Ferric chloride	10 or Below	-	E	G	-
»	sat.	-	-	E	NG
Fluosilicic acid	30 or Below	-	-	E	-
Formaldehyde	10	-	E	G	-
»	40	-	-	E	-
Formic acid	50 or below	-	E	G	-
»	100	E	-	NG	-
Forfural	100	NG	-	-	-
Gas liquor		-	G	-	-
Gasoline		E	-	-	-
Glucose	sat.	-	E	-	-
Glycerine	In all concentrations	-	-	E	(212F) NG
Glycine	10	-	E	-	-
Hexanetrial	comm.	-	-	E	(212F) NG
Hydrobromic acid	10 or below	-	E	G	(212F) NG
»	50	-	-	E	NG
Hydrochloric acid	30 or below	-	E	G	-
»	10 or over	E	-	E	NG
Hydrochloric acid	40 or below	E	-	-	-
»	40	-	-	G	-
»	60	G	-	-	-
»	70	G	-	-	-
Hydrogen	100	-	-	E	(212F) NG
Hydrogen peroxide	30	E	-	-	-
Hydrogen peroxide	20	-	E	-	-
Hydroxylamine sulfate	10 or below	-	E	-	-
Kerosene	100	E	E	-	-
Lactic acid	10 or below	-	E	G	-
»	90	-	-	NG	-
Lead acetate	10 or below	-	E	G	-
»	sat.	-	E	E	NG
Liqueur	comm.	E	E	-	-
Linseed oil	100	E	-	-	-
Magnesium chloride	10	-	E	G	-

Chemicals	Concentration %	Temperature °F (°C)			
		68 (20)	104 (40)	140 (60)	176 (80)
Magnesium chloride	sat.	-	-	E	NG
Magnesium sulfate	10	-	E	G	-
»	sat.	-	-	E	NG
Maleic acid	sat.	-	E	G	NG
Maleic acid	1	E	-	-	-
Mercury	100	E	E	-	-
Methyl alcoholi	100	-	E	G	(149F) NG
Methyl amine	32	G	-	-	-
Methyl chloride	100	NG	-	-	-
Methylene chloride	100	NG	-	-	-
Methyl sulfuric acid	50 or Below	E	G	-	(212F) NG
»	100	-	E	G	NG
Mineral oils		E	E	-	-
Mixed acid H ₂ SO ₄ HNO ₃ H ₂ O	48/49/3	E	G	-	-
»	50/50/0	G	NG	-	-
»	10/20/70	-	E	-	-
»	10/87/3	G	-	-	-
»	50/31/19	E	-	-	-
Nickel sulfate	10	-	E	G	-
»	sat.	-	-	E	NG
Nicotine		E	E	-	-
Nitric acid	30-50	-	E	-	-
»	40	-	-	-	NG
»	98	NG	-	-	-
Nitrobenzene	100	NG	-	-	-
Oleic acid	comm.	-	-	E	-
Oleum	10	NG	-	-	-
Oxalic acid	10	-	E	G	-
»	sat.	-	-	E	NG
Oxygen	In all concentrations	-	-	E	-
Perchloric acid	10 or below	-	E	G	(212F) NG
Perchloric acid	sat.	-	-	E	NG
Phehol	90 or below	-	G	-	-
»	1	E	-	-	NG
Phenylhydrazine	100	NG	-	-	-
Phenylhydrazine Hydrochloride	sat.	G	-	NG	-
Phogene (liquid)	100	NG	-	-	-
» (gas)	100	E	-	G	-
Perchloric acid	30 or below	-	E	G	-
»	30 or over	-	-	E	-
»	80	-	E	-	NG
Phosperus pentoxide	100	E	-	-	-
Phosphorus chloride	100	NG	-	-	-
Photo-developer		-	E	-	-
Photo-fixing bath		-	E	-	-
Picric acid	1	E	-	-	-
Potassium borate	1	-	E	G	-

E : Excellent G : Good NG : Not Good

Sat. : Saturated comm. : commercial grade
conc: concentrated



Chemicals	Concentration %	Temperature °F (°C)			
		68 (20)	104 (40)	140 (60)	176 (80)
Potassium bromade	10 or Below	-	E	G	NG
Potassium bromide	10	-	E	G	-
»	sat.	-	-	E	NG
Potassium chloride	10	-	E	G	-
»	sat.	-	-	E	(212F°) NG
Potassium chromate	40	E	-	-	-
Potassium dichromate	40	E	-	-	-
Potassium ferro (ferry) cyanide	10	-	-	G	-
»	sat.	-	-	E	NG
Potassium hydroxide	40 or Below	-	E	G	-
»	50-60	-	-	E	-
»	50	-	-	-	(212F°) NG
Potassium nitrate	10	-	E	G	-
»	sat.	-	-	E	-
Potassium perchorate	1	-	E	G	NG
Potassium permanganate	6 or Below	E	E	E	-
»	18 or Below	-	E	-	-
Potassium persulfate	10	-	E	G	-
»	sat.	-	E	G	(212F°) NG
Propane (liquid)	100	E	-	-	-
» (gas)	100	E	-	-	-
Propargyl alcohol	7	-	-	-	(212F°) NG
Payon spinning soln containing CS ₂	100 mg/1	-	(112F°) E	-	-
»	200 mg/1	-	(112F°) G	-	-
»	700 mg/1	-	(112F°) NG	-	-
Sea water		-	E	G	-
Silver nitrate	8 or Below	-	E	G	NG
Spermoil alcohol	comm.	E	-	-	-
Sodium benzoate	10 or below	-	E	G	-
»	36	-	-	G	-
Sodium bisulfite	10	-	E	G	-
»	sat.	-	-	E	NG
Sodium chlorate	10 or below	-	E	G	-
»	sat.	-	-	E	(212F°) NG
»	10	G	-	-	-
Sodium ahydroxide	40 or below	-	E	G	-
»	50-60	-	-	E	-
»	50	-	-	-	(212F°) NG
Sodium hypochlorite	10	E	-	-	-
Sodium sulfide	10	-	E	G	-
»	sat.	-	-	E	(212F°) NG
Stannic chloride	10	-	E	G	-
Srearcic acid	100	-	-	E	-
Tartanic acid	10 or below	-	E	G	-
»	sat.	-	-	E	-
Toluce	100	G	-	-	-
Trichloroethylene	100	E	-	-	-

Chemicals	Concentration %	Temperature °F (°C)			
		68 (20)	104 (40)	140 (60)	176 (80)
Triethanol amine	100	NG	-	-	-
Trimethylol propane	10 or below	-	-	G	-
»	comm.	-	G	G	(212F°) NG
Urea	10 or below	-	E	G	-
»	33	-	-	E	-
Vinegar		-	E	-	-
Vinyl acetate	100	NG	-	-	-
Waste gas containing HCl	In all concentrations	-	-	E	NG
» » H ₂ SO ₄		-	-	E	-
Wax alcohol	100	-	-	E	-
Whisky		-	E	E	-
Wine	comm.	E	-	-	-
Zinc chloride	10	-	E	G	-
»	sat.	-	-	E	NG
Zinc sulfate	10	-	E	G	-
»	sat.	-	-	E	NG

E : Excellent
G : Good
NG : Not Good

Sat. : Saturated
comm. : commercial grade
conc: concentrated



Mechanical Resistance of uPVC Flow Resistance of uPVC

The smooth bore of uPVC "PRESSURE" PIPE offers less resistance to flow than conventional pipes. For a given bore and flow rate, a reduction of up to 30% in the loss of head is frequently attainable. Since accretion and buildup are almost unknown and corrosive attacks on the pipe surface do not occur, this superior rate of performance will not be diminished during the life of uPVC piping. In order to calculate the resistance through UPVC "PRESSURE" pipes, reference should be made to the flow charts reproduced hereafter. These have been calculated on the viscosity of water, and adjustments should be made where more viscous liquids are being conveyed.

Loss in Straight Pipes

The Kinematic or static energy of a fluid flowing in a pipe decreases with the increasing distance from the starting flow point. This decrease is due to the friction between the fluid and the pipe wall.

The smoother the inner surfaces of the pipe, the less the friction. This loss of energy is called friction or head loss, and is calculated from the following formulas.

$$h_r = L \frac{V^2}{D \cdot 2g} \quad (\text{Darcy-Weisback's Formula}) \dots\dots (1)$$

Where

h_r - Loss of head in straight pipe (m).

λ - Friction factor of pipe see formulas (2 and 3)

L - Length of pipe line (m). D - Inside Diameter of pipe (M)

g - Graviational acceleration (m./sec²) = 9.80 m/sec² for Latitude 35°

V - Velocity of liquid (m./sec.)

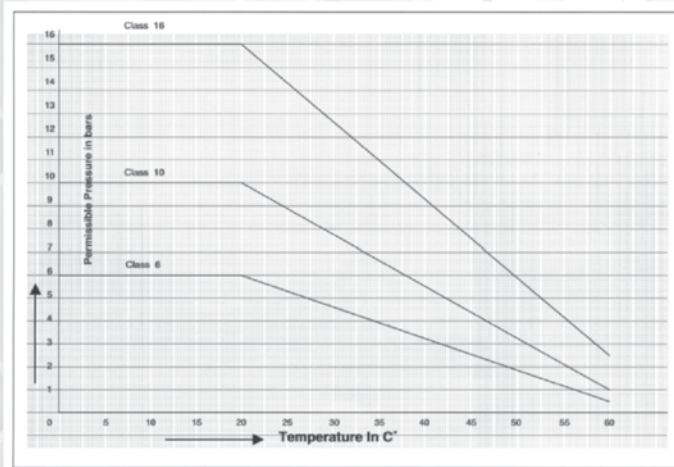
- if Re (Reynolds Number) is less than $(3-4) \times 10^3$

λ - the flow is called Laminar. $\lambda = 64 / Re \dots\dots / (2)$

- if Re is more than $(3-4) \times 10^3$ the flow is called Turbulent

$$\lambda = 0.0096 + 0.0057 \frac{K}{Re} + \frac{288}{Re} \quad Re \dots (3)$$

Re - Reynolds - Number = VD / λ



Permissible working pressure for "uPVC" PIPES according to DIN 8062 class 6, 10 and 16 atm. 16 24 z



λ - Coefficient of Kinematic viscosity = $(1.01 \times 10^6 \text{ m}^2 / \text{sec. for water at } 20^\circ\text{c})$

D - Inside diameter of pipe (em).

K - Roughness coefficient of inner wall of pipe = 0.35 - 0.40

Loss in Fittings and Valves

$$h_r = \frac{K \cdot V^2 \cdot N}{2g}$$

where

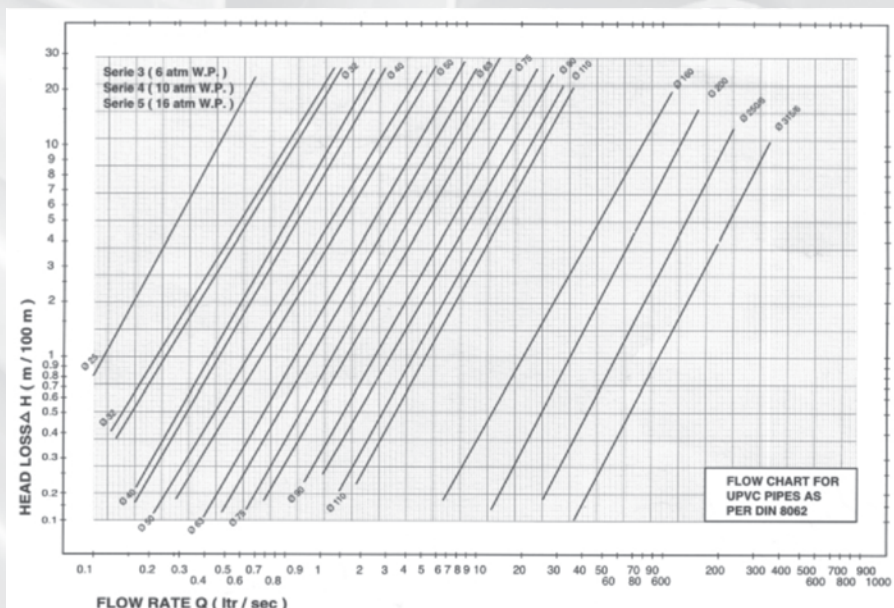
N - Number of fittings (blends, elbows, tees, valves, etc.)

K - Constant depending on the type of fittings.

Elbow 45°	K = 0.40
Elbow 90°	K = 1.00
Long Bends 22 1/2°	K = 0.10
Long Bends 45°	K = 0.20
Long Bends 90°	K = 0.40
Tees 90° flow in Line	K = 0.35
Flow in line to branch	K = 1.20
Flow in branch to line	K = 0.80
Valve	K = 0.70
Fully released valve	K = 0.50

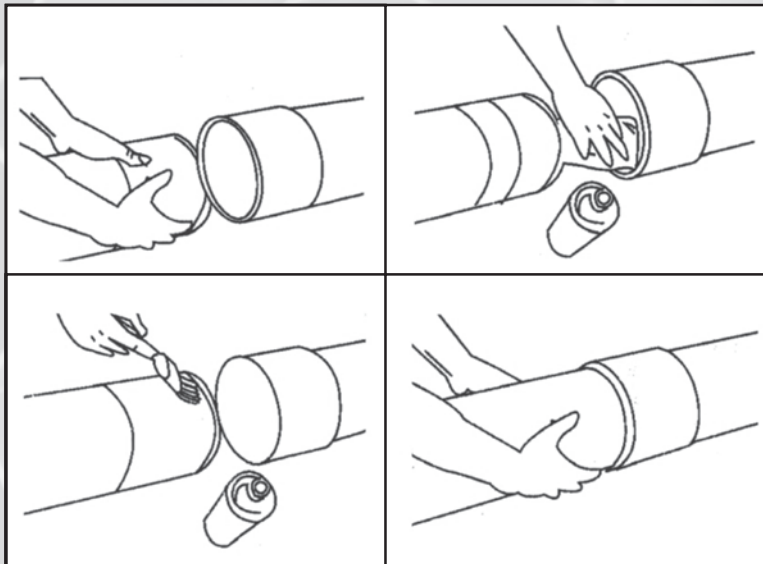
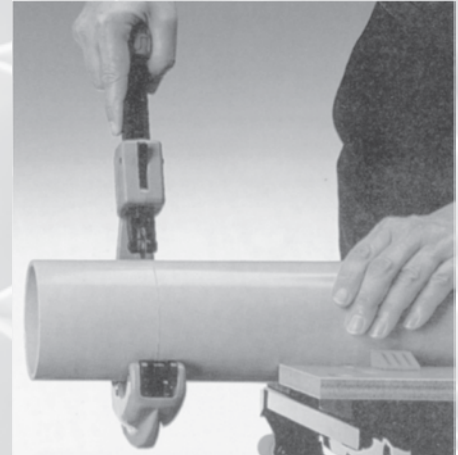
HEAD LOSS H (m/100m)

FLOW RATE Q (ltr / sec)

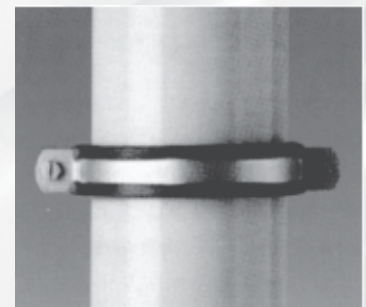


Techniques of Cutting, Joining & Fixing

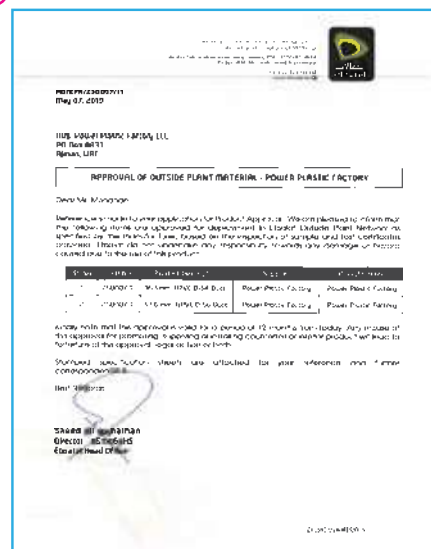
Appropriate pipe cutter or saw should be used
 Cut pipes square and perpendicular to its axes.
 After cutting pipes, clean the edge.



Clean the Pipe edge and spigot
 Apply solvent cement using recommended brush
 Push the spigot in to the socket smoothly
 Allow 6 minutes for the cement to weld the joint



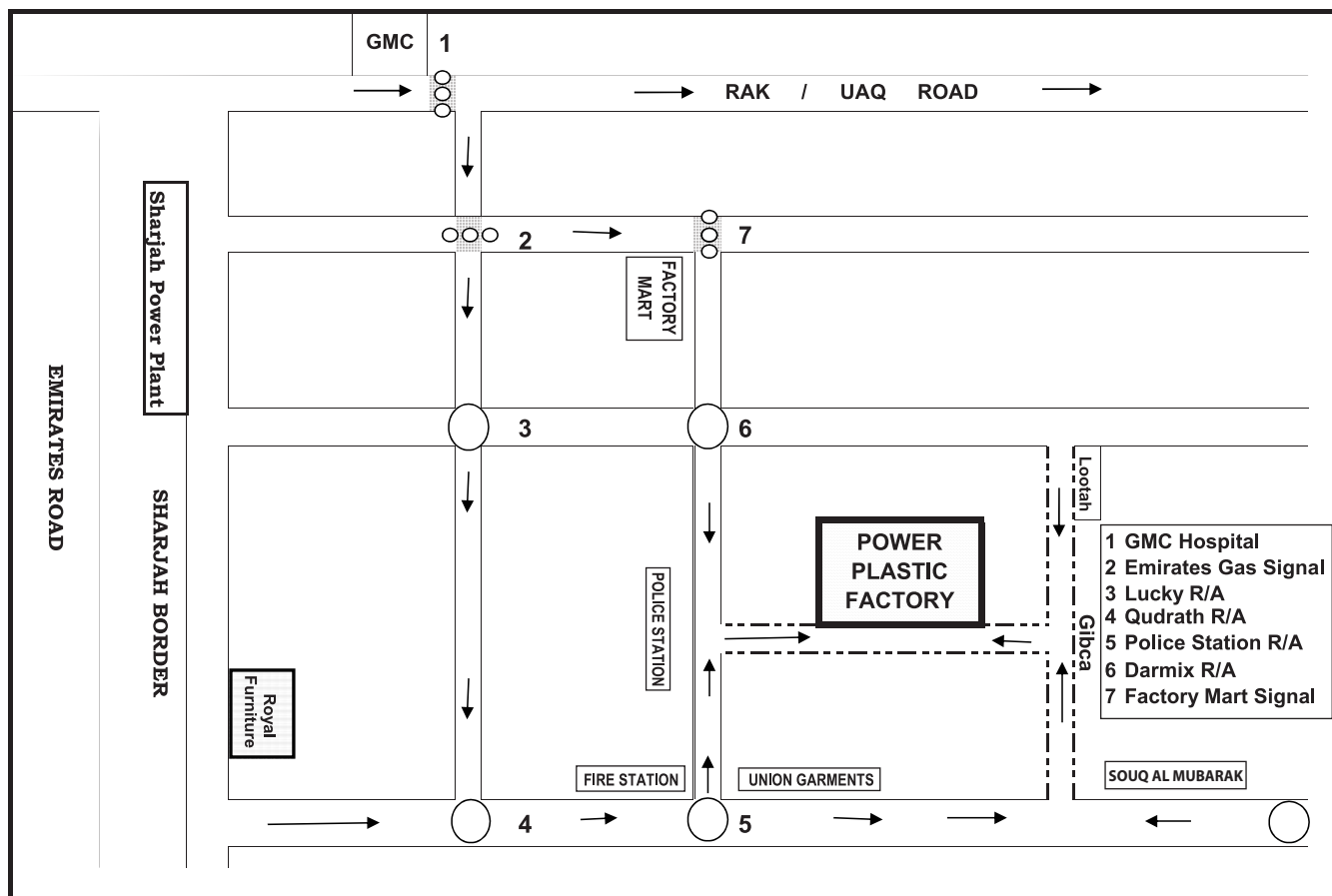
Suitable brackets with rubber lining should be used to support pipes for fixing



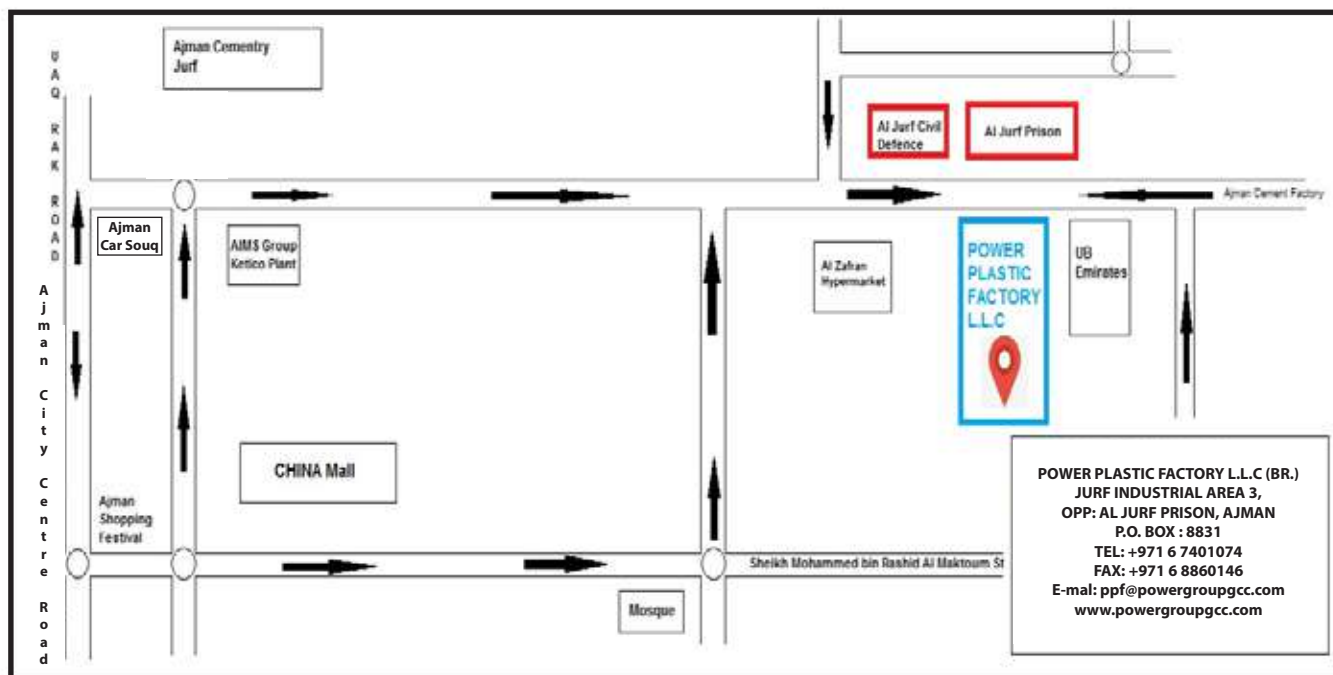


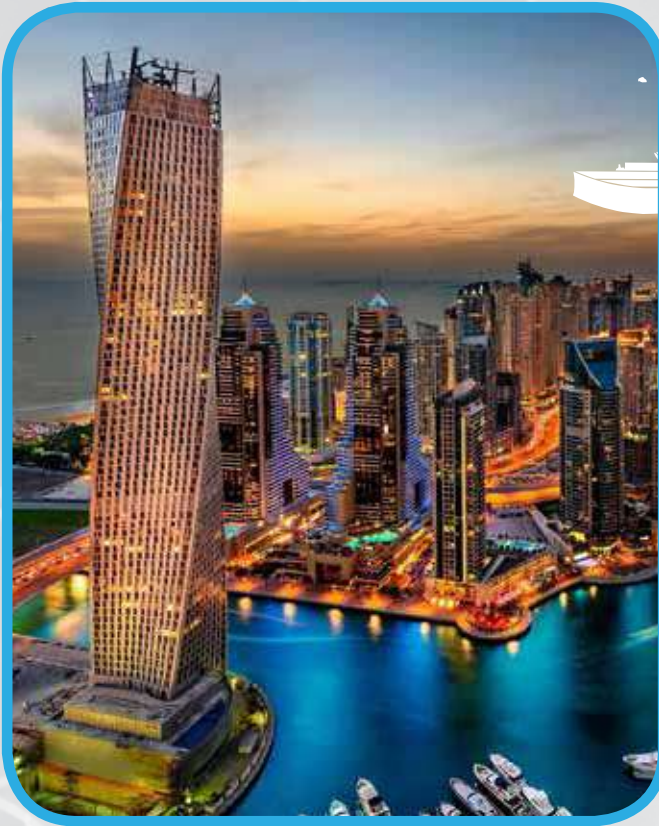


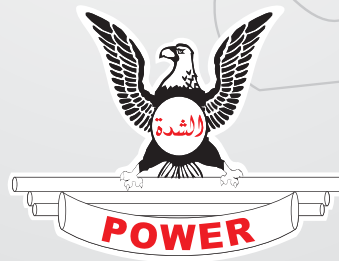
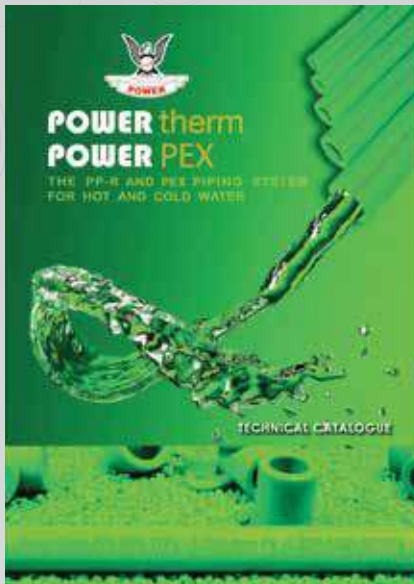
NEW INDUSTRIAL AREA -1



AL JURF INDUSTRIAL AREA -3







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