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فلورنس للصناعات البلاستيكية (ذ.م.م)
FLORANCE PLASTIC INDUSTRIES (L.L.C)

THE HISTORY OF EXCELLENCE

Florance Plastic Industries was formed in 1995. It is the fast growing industry and Having dynamic leading manufacturing facilities in the Middle East. Our company is committed to excellence in every area of its operations to meet the increasing demand for UPVC & Poly Propylene pipes in the region.

Because of higher quality standards our products and customer satisfaction we achieved a remarkable success in a very short span of time.

The company is facilitate with a fully integrated plant for the production of UPVC, and PE plastic pipe products and operates sophisticated state of art plant and machinery for manufacturing of standard and custom built items for meeting accelerated needs of fast expending industries in the gulf. The fully automated Extrusion facilities are efficiently exploited by a dedicated team of expert technicians to achieve customer satisfaction

Quality control is strictly maintained to ensure the products meet customer specifications and International product standards coupled with frequent independent Quality Control tests carried in our company and tested by reputed testing firms .

Quality Policy

To establish long term relationship with our customers we constantly strives to maintain our reputation as a successful, responsive and dynamic organization committed to excellence in providing quality products in the Industry all over the region.

We commits itself to strive for market through customer satisfaction, excellence in quality, using best grade of raw material and meeting all applicable requirements stipulated by ISO 9001:2000 standard.

Our company aspires to provide this by implementing a program of continual improvement which establishes and reviews Quality Objectives. We also ensure that Quality Policy is communicated and understood within the organization.

QUALITY STANDARDS

Our commitment to quality can be seen from the fact that its products meet the high internationally -recognized manufacturing standards.

These standard's include BS3505, BS 4514, BS 5255, BS 5481, BS4660, ASTM, DIN8062, ISO 161/1 and AS specifications.

UPVC PROPERTIES

Description	Unit	Value
Specific Gravity	gm/cm ³	1.43
Tensile Strength @ 20 °C	kg/cm ³	460-550
Specific Heat (Max)	kcal/gm/°C	0.25
Thermal Conductivity	kcal/m.h. °C	0.13
Co-efficient of linear expansion	@ 1 °C	5210-5
Vical Softening Point	at 1 kg load	85°C
Elongation	%	80-150
Modules Elasticity	mpa	1200-1500
Water Absorption	mg/cm ²	<4
Hardness-Shore	Degree	90-120
Flammability		Self Extinguishing
Bending Strength	kg/cm ²	1000
Shear Strength	kg/cm ²	450
Impact Strength	Kg-cm/cm ²	5-7

DRAINAGE PIPES

uPVC Soil & Waste pipes BS 4514

Soil Pipe - BS 4514				
Nominal Size (mm)	Outside Diameter (mm)		Wall Thickness	
	Minimum	Maximum	Minimum	Maximum
82(3")	82.4	82.8	3.2	3.8
110(4")	110.0	110.4	3.2	3.8
160(6")	160.0	160.6	3.2	3.8

uPVC Soil & Waste Pipe - BS 5255				
Nominal Size (Inch)	Outside Diameter (mm)		Wall Thickness	
	Minimum	Maximum	Minimum	Maximum
1-1/2"	42.75	43.05	1.9	2.3
2"	55.75	56.05	2.0	2.4

Note: stocks are available with plain ends and solvent socket.

Manufactured to : BS 4515 - Soil Pipe
 : BS 522 - Soil & Waste Pipe
 Standard Length : 4, 5.8 & 6 meters
 Colour : Light Grey
 Socket type : Solvent Weld



DRAINAGE PIPES

uPVC Underground Drainage & Sewer Pipe

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

uPVC Gravity Sewer Pipe accordance to BS 5481

BS 5481				
Nominal Size (mm)	Outside Diameter (mm)		Wall Thickness (mm)	
	Minimum	Maximum	Minimum	Maximum
200	200.0	200.6	4.9	5.6
250	250.0	250.7	6.1	7.0

Note: stocks are available with plain ends and solvent socket.

Standard Length : 5.8 & 6 meters
Colour : Golden Brown
Socket type : Solvent Weld & Plain-end.



PRESSURE PIPES

uPVC Pressure in accordance to BS 3505

Nominal Size (Inch)	Outside Diameter (mm)		SERIES								
			Class 'O'		Class 'C'		Class 'D'		Class 'E'		
			W.T (mm)		W.T (mm)		W.T (mm)		W.T (mm)		
	Min	Max	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	2.7
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	3.5	4.1	4.6	5.3	5.7	6.6	
4	114.1	114.5	2.3	2.8	4.5	5.2	6.0	6.9	7.3	8.4	
6	168.0	168.5	3.1	3.7	6.6	7.6	8.8	10.2	10.8	12.5	
8	218.8	219.4	3.1	3.7	7.8	9.0					

Pressure Ratings: Designated by the different classes at 20°C
 $1 \text{ kg/cm}^2 = 14.504 \text{ PSI} = 1 \text{ bar}$

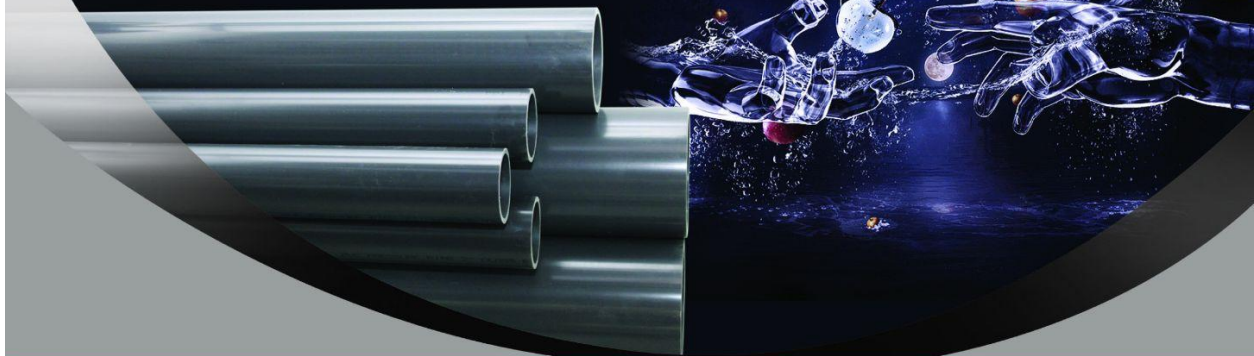
Class	'C'	'D'	'E'	'O'
Bar	9	12	15	Non Pressure
	130.0 lbf/in	173.0 lbf/in	217.0 lbf/in	Non Pressure

Manufactured to : BS 3505/3506 1969
 Standard Length : 5.8 and 6 meters.
 Colour : Dark grey
 Socket type : Solvent weld / Plain end

UPVC PIPES BS 3505 FOR COLD PORTABLE WATER

Nominal Size (inch)	CLASS E	CLASS - O (9 BAR)
	Maximum W.T	Maximum W.T
1/2"	2.1	1.6
3/4"	2.5	1.7
1"	2.7	1.9
1 1/2"	3.7	2.5
2"	4.5	3.0

Manufactured to : BS 3505/3506 1969
 Standard Length : 4, 5.8 and 6 meters.
 Colour : White and Grey
 Socket type : Solvent weld / Plain end



PRESSURE PIPES

uPVC Pipes as per DIN 8062

Nominal Size (mm)	Outside Diameter (mm)		SERIES								
			4 BAR		6 BAR		10 BAR		16 BAR		
			W.T (mm)		W.T (mm)		W.T (mm)		W.T (mm)		
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
20	20	20.2								1.5	1.9
25	25	25.2						1.5	1.9	1.9	2.3
32	32	32.2						1.8	2.2	2.4	2.9
40	40	40.2			1.8	2.2	1.9	2.3	3.0	3.5	
50	50	50.2			1.8	2.2	2.4	2.9	3.7	4.3	
63	63	63.2			1.9	2.3	3.0	3.5	4.7	5.4	
75	75	75	1.8	2.2	2.2	2.7	3.6	4.2	5.6	6.4	
90	90	90.3	1.8	2.2	2.7	3.2	4.3	5.0	6.7	7.6	
110	110	110.3	2.2	2.7	3.2	3.8	5.3	6.1	8.2	9.3	
125	125	125	125.3	2.3	2.5	3.7	3.9	6.0	6.3		
160	160	160.4	3.2	3.8	4.7	5.4	7.7	8.7			
200	200	200.4	4.0	4.6	5.9	6.7	9.6				

Manufactured to : DIN 8061/62
 Standard Length : 5.8 and 6 meters
 Color : Dark Grey
 Socket type : Solvent Weld or Plain end.

Note: 1) Non - Standard lengths and colors can be manufactured to meet customer's exact requirements.
 2) All commonly used dimensions are normally available, delivery for other sizes on request

PRESSURE PIPES

uPVC Pressure Pipe

uPVC Pipes as per ISO 161/1

Outside Diameter (mm)	Wall thickness (mm)		
	1.6	2.0	2.5
20			1.4
25			1.5
32			1.9
40		1.6	2.4
50		2.0	2.4
63	1.6	2.5	3.0
75	1.9	2.9	4.5
90	2.2	3.5	5.4
110	2.7	4.2	6.6
125	2.00	3.2	4.5
160	4.0	6.2	9.0
200	4.9	7.7	

Manufactured to : ISO 161/1
Standard Length : 5.8 and 6 meters
Colour : Dark Grey
Socket type : Solvent Weld or Plain end.

Note:

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

ELECTRICAL AND TELEPHONE DUCTS:

UPVC Conduit for Electrical Cable BS 6099- 1982

BS 6099 - uPVC Conduit			
Nominal size (mm)	Maximum Wall Thickness (mm)		
	Light	Medium	Heavy
20	1.2	1.5	1.8
25	1.4	1.8	1.9
32	1.5	2.1	2.5
38	1.5	2.2	2.5
50	1.9	2.5	3.2

Manufactured to : BS 6099
 Standard length : 3 meter
 Colour : Black or White
 Socket type : Plain end

Note: Non-standard lengths and colours can be manufactured to meet customer's exact requirements.

uPVC Electrical & Telephone Duct (British Standard B.P.O)

uPVC Telephone Duct						
Duct No.	Outside Diameter of Duct (mm)	Wall Thickness (mm)	Inside Diameter of Socket at Entry (mm)	Inside Diameter of Socket at Shoulder (mm)	Socket Length (mm)	Effective Duct Length Meters
54D	96.5±0.2	3.25±0.4	97.0±0.1	96.0±0.1	100	6
56	53.9±0.1	1.55±0.15	54.1±0.1	53.9±0.1	70	6



SOLVENT CEMENT JOINTING

FLORANCE PLASTIC INDUSTRIES



SOLVENT CEMENT JOINTING FOR UPVC SYSTEMS :

Pipes up to 160mm may be jointed easily with solvent adhesives. Larger sizes require special techniques to make such joints. And in all cases we advise usage of high quality and guaranteed solvent cement adhesives.

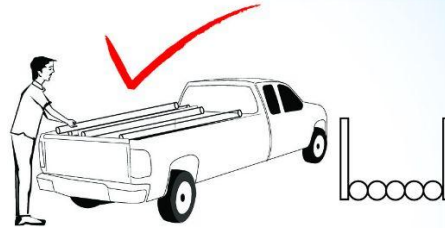
JOINTING PROCEDURE:

1. Mark depth of entry pipe into socket and alignment mark.
2. Make small chamfer on the edge of pipe end with medium file (if not existing)
3. Roughen the outside of pipe and inside of the socket using sand paper or felt cloth up to the safety mark.
4. Clean both surfaces and remove all dust, grease and sand etc. using a dry clean cloth and company recommended chemical cleanser.
5. Apply adhesive without delay after cleaning, using a flat clean brush, apply on even unbroken layer brushing axially to the pipe end socket mouth with a heavier layer on the pipe, where loose fits are found the pipe should be given a second coat.
6. Immediately insert the pipe into the socket up to the entry mark, align pipe and socket hold in position for a few seconds, then wipe off excess cement (do not twist)

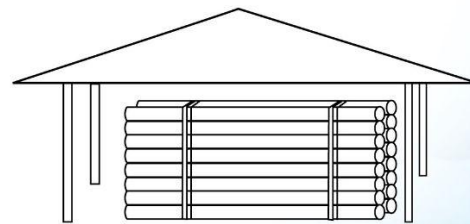
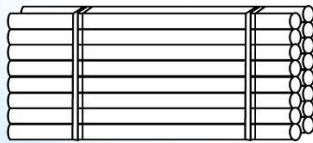
HANDLING AND STORAGE

HANDLING

The proper handling of pipes is the utmost priority otherwise it can be seriously affect the quality of pipes and pipeline structure, so it is important to follow proper care and handling. The pipes should be handled carefully at all times, particularly during transportation and off loading, the pipes should not drop from a height nor drag them from one place to another place at hard surfaces it may damage the pipes and make them unable to use.



STORAGE

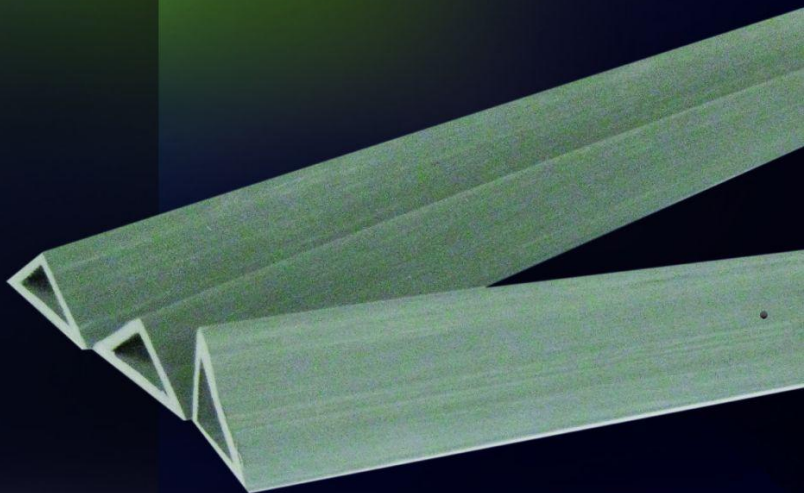


- 1 Pipes should be stored parallel on flat ground free from sharp tones or open racks.
- 2 Protect pipe always from direct Sunlight by covering with a white felt cloth.
- 3 Do not exceed height of 34 stacking pipes
- 4 Do not store pipes more than flayers wish.
- 5 Do not store pipes for more than 2 weeks in open during hot summer days.
- 6 Do not allow pipe to come in contact with any chemocal directly.

PVC CHAMFER

PVC Chamfer Strips create durable outside corners on concrete columns, beams or walls. Chamfer Strips prevent leakage of concrete and eliminate the need for rubbing or stoning. All chamfers produced by us containing hole for inserting nails at every 30-40cm distance.

size	Dimensions
10 mm	10 x 10 mm
15 mm	15 x 15 mm
20 mm	20 x 20 mm
25 mm	25 x 25 mm



PP-R PIPES

PP-R PIPES

The pipes of polypropylene random are produced according to the international standards, such as din 8077 and din Their use, especially in applications for cold and hot water distribution lines Other applications, such as plants for distribution of compressed air, lines for drinkable water and other alimentary liquids and other chemical liquids were proven successful and economical.

PP-R PIPES - ACCORDANCE TO DIN 8077/78

Outside Diameter (mm)	Tolerance Outside diameter (mm)	PN 10 SDR 11 Series 4	PN 16 SDR7.4 Series 5	PN 20 SDR 6 Series 6	PN 25 SDR 5 Series 2
20	+ 0.3 - 0	1.9	2.8	3.4	4.1
25	+ 0.3 - 0	2.3	3.5	4.2	5.1
32	+ 0.3 - 0	2.9	4.4	5.4	6.5
40	+ 0.4 - 0	3.7	5.5	6.7	8.1
50	+ 0.5 - 0	4.6	6.9	8.3	10.1
63	+ 0.6 - 0	5.8	8.6	10.5	12.7
75	+ 0.7 - 0	6.8	10.3	12.5	15.1
90	+ 0.9 - 0	8.2	12.3	15.0	18.1

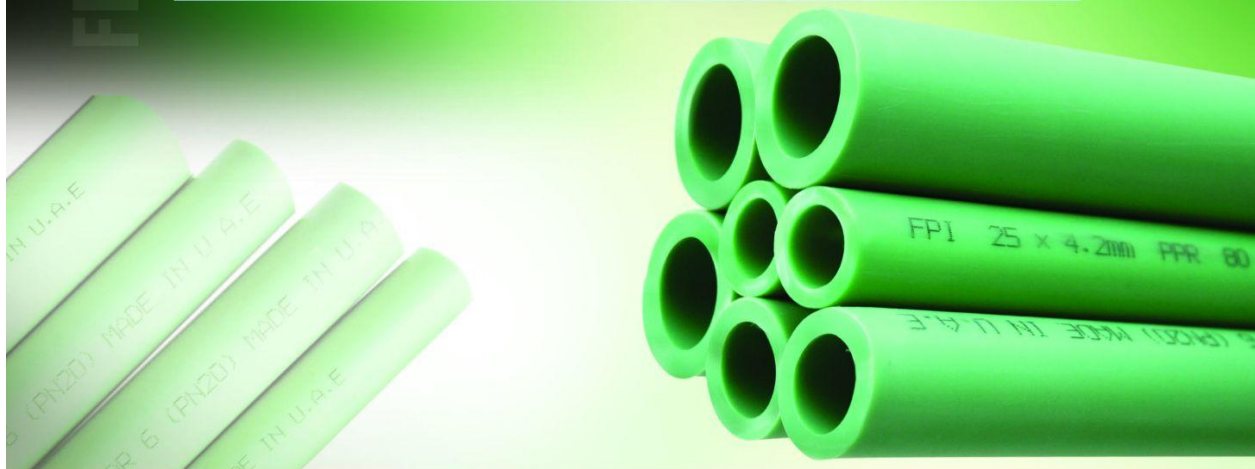
Pipe Diameter (mm)	Welding Depth (mm)	Heating time (secs)	Processing time (secs)	Cooling time (mins)
20	14	6	4	2
25	16	7	4	2
32	18	8	6	4
40	20	12	6	4
50	23	18	6	4
63	26	24	8	6
75	28	30	10	8
90	30	40	11	8



PP-R PIPES

Material Properties:

Term	Value	Unit	Method
Melt index	0.25	g/10min	ASTM D1238
Density	0.9	g/cm ³	ASTM D1505
OIT (at 200° C)	>30	min	ASTM D3895
Water Absorbent	<0.01	%	ASTM D570
Tensile strength(Yield)	230	Kgf cm/cm ²	ASTM D638
Elongation (Break)	>600	%	ASTM D638
Flexural Modulus	8,500	Kgf cm/cm ²	ASTM D790
Hardness (Rockwell)	72	R Scale	ASTM D785
Izod Impact strength(Non-Notched)	NB	Kgf cm/cm	ASTM D256
Izod Impact strength(Notched 23 °C)	60	Kgf cm/cm	ASTM D256
Melting Point	139	°C	ASTM D3418
Softening Point (Vicat)	133	°C	ASTM D1525
Heat Deflection Temperature	85	°C	ASTM D648
Specific Heat	0.46	Cal/g°C	ASTM D
Heat Conductivity	3	10 ⁻⁴ cal cm/cm sec °C	ASTM D



PP-R PIPES

Lifetime of PPR Pipes

The Following table shows the lifetime of PPR pipes at various selected temperatures and pressures.

Temperature (°C)	Service Life (Years)	Pressure Group			
		PN 10	PN 16	PN 20	PN 25
Maximum Permissible Working Pressure*					
20	1	18.0	28.6	36.0	45.3
	10	16.4	26.1	32.8	41.3
	50	15.5	24.5	30.9	38.9
	100	15.0	23.8	29.3	37.7
30	1	15.3	24.3	30.6	38.5
	10	13.9	22.0	27.7	34.9
	50	13.1	20.7	26.1	32.9
	100	12.8	20.2	25.5	32.1
40	1	12.9	20.5	25.8	32.5
	10	11.8	18.7	23.6	29.7
	50	11.0	17.5	22.0	27.7
	100	21.3	16.9	21.3	26.9
50	1	11.0	17.5	22.0	27.7
	10	9.9	15.7	19.7	24.9
	50	9.3	14.7	18.5	23.3
	100	8.9	14.2	17.8	22.5
60	1	9.3	14.7	18.5	23.3
	10	8.3	13.2	16.6	20.8
	50	7.7	12.1	15.3	19.2
70	1	7.8	12.4	15.6	19.6
	10	7.0	11.1	14.0	17.6
	50	5.1	8.1	10.2	12.8
80	1	6.5	10.4	13.1	16.4
	10	4.8	7.6	9.6	12.0
	50	3.8	-	7.6	9.6
	1	4.6	7.3	9.2	11.6
95	10	2.6	4.0	5.1	6.4



TECHNICAL SPECIFICATION

Conversion Factors

IMPERIAL UNIT	METRIC UNIT
1 Inch (in)	= 2.54 x 10 ⁻² Meters(m)
1 Pound (lb)	= 4.536 x 10 ⁻¹ Kilogram (kg)
1 Newton (N)	= 1.0197 x 10 ⁻¹ Kilopound (kp)
1 Pound force (lbf)	= 4.448 Newton (N)
1 Bar (bar)	= 105 Pascal (pa)
1 Bar (bar)	= 105 Newton/Metre ² (N/m ²)
1 Bar (bar)	= 1.02 Kilopascal/Centimetre ² (kp/cm ²)
1 Bar (bar)	= 14.5 Pounds/Square inch (psi)
1 Kg force/Centimetre ² (kgf/cm ²)	= 9.806650 x 10 ⁴ Pascal (pa)
1 Pound force/inch ² (lbf/in ²)	= 6.894757 x 10 ³ Pascal (pa)
1 Physical Atmosphere (atm)	= 1.01325 Bar (bar)
1 Inch of water (60° F)	= 2.4884 x 10 ² Pascal (pa)
1 Inch of mercury (60° F)	= 3.377 x 10 ³ Pascal (pa)
1 American gallon	= 3.785 Litres
1 British gallon	= 4.546 Litres
1 Joule (j)	= 1.01972 x 10 ⁻¹ Pascal (pa)
1 Joule (j)	= 2.388 x 10 ⁻⁴ Kilo Calorie (kcal)
1 Foot - Pound force (ft-lbf)	= 1.3558 Joules (j)

