



شركة صافي أحمد الكردي وشركاه
SAFI AHMAD ALKURDI & CO.

POLYETHYLENE PIPES & FITTINGS

مياه شرب - ري - مياه صرف - تغطية كوابل الكهرباء والاتصالات
Drinking Water - Irrigation - Drainage - Gas - Electrical & Communication Conduit



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SAFI AHMAD ALKURDI & CO.

COMPANY PROFILE

SAFI AHMAD ALKURDI & CO. was established in Jordan since 1970 and highly recognize in piping industry. Since then, Al-Wareef invest in Kingdom of Saudi Arabia in 1999 with partners 50 percent joint venture with Safi Al-Kurdi and located at Riyadh. We, SAFI AHMAD ALKURDI & CO. take this opportunity to introduce our POL YETHYLENE PIPE Factory to you. We have great pleasure to introduce ourselves as one of the manufacturer of High & Low Density (HDPE & LDPE) Polyethylene Pipes and PP FITTINGS in the Kingdom with export to all over the Countries.

Our products range from 13mm up to 450mm. Our HDPE Pipes are suitable both for "Pressure" and "Non Pressure" application including the following :

- A- Potable Water Supply Lines.
- B- Hot Water Supply Lines c_ Fire Fighting Network.
- C- Drainage & Sewage System.
- D- Electric and Telephone Sub Duct.
- E- Irrigation Pipe.
- F- Gas Line.
- G- Mining Transportation.

The PE Pipes manufactured by us are Flexible. UV Resistance and Sun Light & Heat Proof. Our pipes are produced according to DIN 8074/75 and ISO 4427 for High Density and according to DIN 8072/73 for Low Density Pipes.



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Introduction

Polyethylene is a thermoplastic Polyolefin material generated from the polymerization of ethylene. It is manufactured on a petrochemical basis with petroleum as the raw material. Depending on the polymerization process, different types of Polyethylene materials can be produced. Low Density Polyethylene (LDPE), has a density of 0.91 - 0.93 g/cm³, while High Density Polyethylene (HDPE), has a density of 0.94 - 0.96 g/cm³. In recent years extended development work has been undertaken by PE resin manufacturers, which has resulted in materials with better long-term strength and temperature resistance than the old generation grades. The new classification is based on the minimum required strength (MRS), which has to be applied for designing long-term loaded PE pipes operating at a temperature of 20°C for a design life of at least 50 years. A << third-generation >> PE Grade was developed and recognized as PE 100 which has a MRS of 10MPa and a design tensile stress of 8 MPa. It is especially design for the production of larger diameter and thick-walled pipe, but can be processed for the whole range of diameters. It also shows excellent resistance to rapid crack propagation and slow crack growth.

Application

HDPE pipes become widely adopted in a variety of piping systems and are rapidly replacing most conventional pipes. HDPE pipes proved very successful in the main potable water supply and distribution lines, plumbing, drainage & sewerage, sprinkler & drip irrigation systems, fire fighting networks, underwater piping system, relining of old pipelines, laboratories, electrical conduits & fiber-optic ducts, and gas distribution. It has a broad variety of industrial applications including the chemical industry, crude oil, mine slurry transportation and many other applications.





Properties of Polyethylene Pipe

SAFI AHMAD ALKURDI & CO. are flexible, lightweight, impact resistant and long lasting. The black color of the pipe makes it resistant to UV-radiation. Abrasion resistance is better than any other rigid thermoplastics and considerably better than steel and other metal pipes, concrete and asbestos cement. Corrosion resistance of HDPE pipes is excellent and it is unharmed by all process chemicals.

Chemical Resistance

Polyethylene material is renowned for its good resistance to chemical attack. It is chemically inert within its normal temperature range of practical use. The degree of resistance to specific chemical will depend on concentration, temperature and working pressure, each of which will affect the long term life of any system. Polyethylene pipe does not rot, rust, pit, corrode, or lose wall thickness through chemical reaction with the surrounding soil. It does not support the growth of, nor is affected by algae, bacteria or fungi. Therefore it is a good choice for conveying drinking water and aqueous of foodstuffs.

Thermal Properties

The water or any medium contained in PE pipe changes temperature more slowly than any other conventional pipe, because the thermal conductivity of PE pipe is very low at 0.43W/mK. Changes in length due to thermal action are generally much greater for plastic than for conventional pipe materials such as steel and concrete. If the change in length is prevented, the stress in the material will follow. It should be observed that, although the relative change in length may be great, the stress is not necessarily very large. This is due to the fact that the E-modulus usually decreases when the coefficient of thermal expansion increases for plastics materials.

Color of Pipes

AL-WAREEF Pipes are normally supplied in black color to counter attack Ultra-violet radiation and to suite extreme weathering conditions. Other colors also can be produced depending on customer requirement. A co-extrusion system is responsible for producing pipe with color stripes depending on pipe application. Blue stripe for potable water, Orange for conduit, and Yellow for gas application.

Pipe Length

AL-WAREEF pipes in the range 16 mm OD to 160 mm OD are available in coils of 50 Meter and 100 Meter length. Larger diameters are supplied in straight lengths of 6 Meter and 12 Meter. Other lengths can also be supplied on request.

JOINING METHODS OF HDPE PIPES AND FITTINGS

Butt-fusion Jointing



During recent years several different methods of welding PE pipes have been developed. In the case of larger diameter HDPE pipes, the most usual method is Butt Welding. The welding procedure involves accurate machine planing of the pipe ends followed by heating to the melting point of the pipe ends which are then joined together under pressure. The heating time, temperature, and pressure are adjusted so that the physical properties of the original material are retained. Both the temperature and pressure must be carefully checked and adapted to the actual raw material, pipe diameter and the wall thickness. A good quality of a butt welded joint means that the strength of the joint should be about the same as valid for the basic pipe material. This method of jointing requires an electrically heated plate to raise the temperature of the pipe ends to the required fusion temperature and is used to weld PE pipes of the same Standard Dimension Ratio (SDR).

Electrofusion Jointing



Using electrofusion to join PE pipes enables a secure, systematic, economical and efficient installation of PE piping system. One advantage of this type of jointing is the capability to weld pipes or fittings with different wall thicknesses (SDRs) using the same welding conditions. The control unit is very portable and can be used to weld pipes or fittings with ease even in narrow locations and difficult installation conditions. The inside bore in the joint portion is very smooth since there will be no bead formation which could contribute restrictions of flow.

Compression (quick fix) Jointing



This type of mechanical jointing of PE pipes is done by the use of PP compression fittings. This connection applies mostly in the irrigation sector and in potable water system. The range of compression fittings comprises a large number of items suitable for meeting a wide range of installation requirements. The dimensions of the fittings range from 16MM up to 125MM. Operating pressures at 20°C for sizes range from 16MM to 63 MM is 16 bar while sizes range from 75MM to 125MM is 10 bar.

Flange Connections



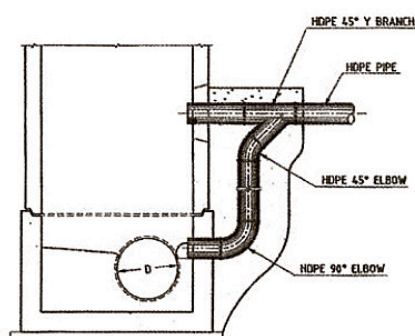
Polyethylene pipes can not be jointed by butt fusion welding to other pipes made of non-PE material (e.g. uPVC, asbestos, PP etc.) Wherever possible, flange joints should be made before other joints are completed. Pipework configuration shall be such that mating flanges are in true alignment and butted squarely to each other with a maximum separation of 5MM - between the flange faces prior to bolting up. Only clean undamaged nuts and bolts of the correct size should be used, with flat washers of correct size at either end. Care must be taken to ensure that the gasket is centered properly between the two flanges before tightening commences. The nuts and bolts must be tightened as uniformly as possible using a torque wrench, in diagonally opposite sequence, progressively from a finger tight start till the final torque.

INSTALLATION OF « PE » PIPELINE

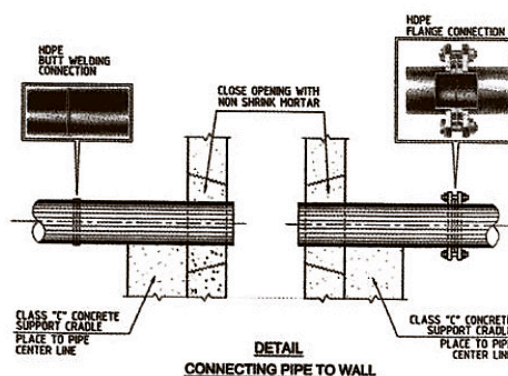
There are a number of methods for installing new PE pipelines using both excavation and trenchless techniques. The techniques considered within this section are summarized as follows;

Excavation	Trenchless
Open-cut trenching	Impact moling
Narrow trenching	Directional drilling
Moleploughing	Guided drilling

The dimensions of the trenchline opening are normally governed by the pipe diameter, method of jointing and site conditions. Normal minimum depth of cover for mains should be 900mm from ground level to the crown of the pipe. Trench width should be as narrow as possible but typically not less than the outside diameter of the pipe plus 250 mm to allow for correct compaction of sidefill unless specialized narrow trenching techniques are used. The minimum lower bedding distance is 110mm and the minimum initial cover above pipe crown is 100mm. A compaction in layers of 250mm (max) backfill should be done till reaching the ground surface. **Other recommended installations for in-house and drainage are shown as follows:**

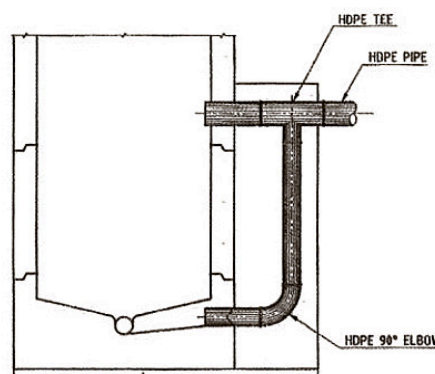
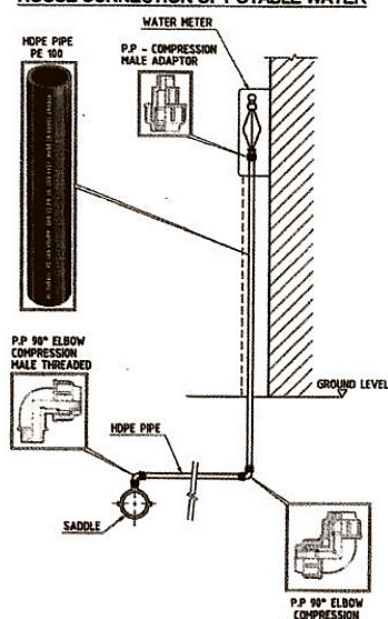


**CONNECTION TYPE III TO MANHOLE
WITH DROP > MAXIMUM DROP
(TYPICAL DEEP DROP MANHOLE)**



**DETAIL
CONNECTING PIPE TO WALL**

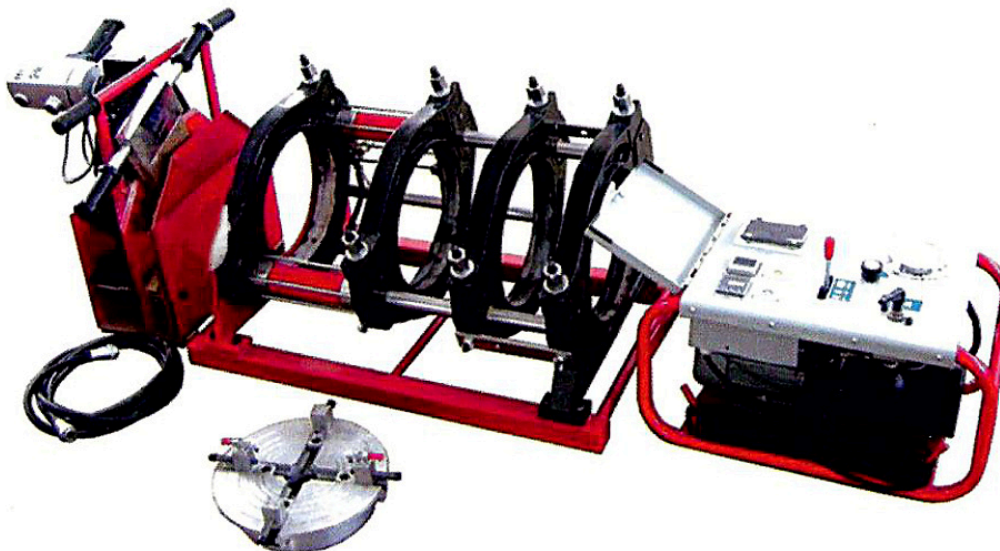
HOUSE CONNECTION OF POTABLE WATER



**SECTION C-C
CONNECTING HDPE PIPE
TO DRAINAGE MANHOLE**

Field butt Welding Machines

Hydraulically operated butt welding machine, suitable for PE and PP pipes and fittings. High quality design and construction provides an excellent machine for welding both on the worksite and in the factory. The use of high quality Aluminum castings allows for lower weight without compromising strength and performance. Can be integrated with optional data logger or CNC control system.



Working Range Ø Mm

63	75	90	110	125	140	160	180	200	225	250	280	315
•	•	•	•									
•	•	•	•	•	•	•						
•	•	•	•	•	•	•	•	•				
		•	•	•	•	•	•	•	•	•		
		•	•	•	•	•	•	•	•	•	•	•

Electrofusion Machines

electrofusion machine, suitable for welding HDPE and PP couplings (from 8 to 48 v)

Standard Composition

Universal Adapter Ø 4.0 - 4.7 mm

Optical Scanner

Manual Scraper

Transport Case.



**Table 1 Material Properties of HDPE**

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 5272-	MPa	22	25
Elongation at Break	ISO 5272-	%	> 600	> 600
Charpy Impact Strength, notched	ISO 1791/eA	kJ/m ²	14	16
Carbon Black Content	ASTM D 1603	%	2	2
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/moK	0.4	0.4

Dimensions

All dimensions are expressed in metric units. The diameter of pipes are measured in millimeters(mm) and represent the outside diameter of the pipe. A table shown below facilitates comparison of OD in metric and inch.

Table 2

MM	16	20	25	32	50	63	75	90	110	125	160	200	250	315	355	400	450	500	630
Inch	3/8	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24

Pressure ratings of Polyethylene pipe at elevated temperatures.

The nominal working pressure has been calculated for operational conditions at 20°C. Since Polyethylene pipe is a thermoplastic material, a loss in mechanical properties is to be expected as the temperature rises. Where the system is to be operated at temperatures above 20°C, then the allowable working pressure and service life must be reduced. Details of which are shown in the following table.

Table 3

Temp. °C	Years Of Service	Allowable Working Pressure in Bar, with a Safety Factor of 1.25							
		PE 80	PE 100	PE 80	PE 100	PE 80	PE 100	PE 80	PE 100
		SDR 33	SDR 41	SDR 22	SDR 26	SDR 13.6	SDR 17	SDR 9	SDR 11
20	50	4	4	6	6.3	10	10	16	16
30	50	3.3	3.3	5	5.3	8.4	8.4	13.5	13.5
40	50	2.9	2.9	4.3	4.5	7.2	7.2	11.6	11.6
50	15	2.2	2.3	3.4	3.7	5.7	5.9	9.1	9.5
60	5	1.8	1.9	2.7	3.0	4.5	4.8	7.2	7.7
70	2	1.3	1.5	2	2.4	3.4	3.9	5.5	6.2
Temp. °C	Years Of Service	Allowable Working Pressure in Bar, with a Safety Factor of 1.6							
		PE 80	PE 100	PE 80	PE 100	PE 80	PE 100	PE 80	PE 100
		SDR 26	SDR 33	SDR 17.6	SDR 21	SDR 11	SDR 13.6	SDR 7.4	SDR 9
20	50	4	3.9	6	6.2	10	9.9	15.3	15.6
30	50	3.3	3.3	5	5.3	8.4	8.4	13.5	13.5
40	50	2.9	2.9	4.3	4.5	7.2	7.2	11.6	11.6
50	15	2.2	2.3	3.4	3.7	5.7	5.9	9.1	9.5
60	5	1.8	1.9	2.7	3.0	4.5	4.8	7.2	7.7
70	2	1.3	1.5	2	2.4	3.4	3.9	5.5	6.2

For further information, contact technical support department

**Table 4 HDPE PIPE DIMENSION AS PER DIN 80741999-E SPECIFICATIONS.****Design Stress = 5.0 MPa**

O.D.	S 12.S		S 8.3		S 5		S 3.2	
	S DR 26		S DR 17.6		S DR 11		S DR 7.4	
	PN 4		PN 6		PN 10		PN 16	
	W.T.	Weight	W.T.	Weight	W.T.	Weight	W.T.	Weight
mm	mm	Kg/m	mm	Kg/m	mm	Kg/m	mm	Kg/m
16					1.8	0.084	2.2	0.099
20					1.9	0.112	2.8	0.158
25			1.8	0.137	2.3	0.171	3.5	0.245
32			1.9	0.187	2.9	0.279	4.4	0.393
40	1.8	0.228	2.3	0.285	3.7	0.430	5.5	0.617
50	2.0	0.314	2.9	0.440	4.6	0.666	6.9	0.936
63	2.5	0.494	3.6	0.688	5.8	1.05	8.6	1.47
75	2.9	0.675	4.3	0.976	6.8	1.47	10.3	2.14
90	3.5	0.978	5.1	1.39	8.2	2.12	12.3	3.07
110	4.2	1.43	6.3	2.08	10.0	3.14	15.1	4.51
125	4.8	1.84	7.1	2.66	11.4	4.08	17.1	5.83
140	5.4	2.32	8.0	3.34	12.7	5.08	19.2	7.40
160	6.2	3.04	9.1	4.35	14.6	6.67	21.9	9.52
180	6.9	3.84	10.2	5.48	16.4	8.46	24.6	12.10
200	7.7	4.69	11.4	6.79	18.2	10.4	27.4	14.90
225	8.6	5.96	12.8	8.55	20.5	13.1	30.8	18.90
*250	9.6	7.34	14.2	10.6	22.7	16.2	34.2	23.30
*280	10.7	9.16	15.9	13.2	25.4	20.3	38.3	29.06
*315	12.1	11.7	17.9	16.7	28.6	25.7	43.1	36.73
*355	13.6	14.7	20.1	21.2	32.2	32.6	48.5	46.55
*400	15.3	18.7	22.7	26.9	36.3	41.4	54.7	59.17
*450	17.2	23.6	25.5	34.0	40.9	52.4	61.5	74.82

Note: * Can be supplied on special request; W.T. - Wall Thickness; O.D. - Outside Diameter;
SDR - Standard Dimension Ratio; S - Pipe Series #; PN - Nominal Pressure

Table 5 HDPE PIPE DIMENSION CONFORMING TO ISO 4427"
Design Stress = 8 MPa

O.D.	S 20		S 12.5		S 10		S 8		S
	S DR 41		S DR 26		S DR 21		S DR 17		S DR
	PN 4		PN 6.3		PN 8		PN 10		PN
	W.T.	Weight	W.T.	Weight	W.T.	Weight	W.T.	Weight	W.T.
mm	mm	Kg/m	mm	Kg/m	mm	Kg/m	mm	Kg/m	mm
20									
25									
32							2.0	0.197	2.4
40					2.0	0.25	2.4	0.29	3.0
50			2.0	0.32	2.4	0.37	3.0	0.45	3.7
63			2.5	0.48	3.0	0.58	3.8	0.72	4.7
75			2.9	0.69	3.6	0.82	4.5	1.01	5.6
90			3.5	0.97	4.3	1.18	5.4	1.47	6.7
110			4.2	1.44	5.3	1.78	6.6	2.18	8.1
125	3.1	1.23	4.8	1.85	6.0	2.27	7.4	2.77	9.2
140	3.5	1.55	5.4	2.33	6.7	2.84	8.3	3.48	10.3
160	4.0	2.00	6.2	3.05	7.7	3.74	9.5	4.55	11.8
180	4.4	2.49	6.9	3.81	8.6	4.69	10.7	5.75	13.3
200	4.9	3.05	7.7	4.72	9.6	5.81	11.9	7.10	14.7
225	5.5	3.87	8.6	5.92	10.8	7.34	13.4	8.99	16.6
*250	6.2	4.85	9.6	7.34	10.9	8.99	14.8	11.02	18.4
*280	6.9	6.00	10.7	9.16	13.4	11.35	16.6	13.86	20.6
*315	7.7	7.54	21.1	11.67	15.0	14.26	18.7	17.54	23.2
*355	8.7	9.60	13.6	14.92	16.9	18.11	21.1	22.33	26.1
*400	9.8	12.16	15.3	18.70	19.1	23.09	23.7	28.23	29.4
*450	11.0	15.33	17.2	23.64	21.5	29.19	26.7	35.76	33.1

Note: * Can be supplied on special request; W.T. - Wall Thickness; O.D. - Outside Diameter; SDR - Standard Dimension Ratio; S - Pipe Series #; PN - Nominal Pressure

DIN 8074 & EN 12201 SPECIFICATIONS.

6.3	S 5		S 4		S 3.2		S 2.5		O.D.
13.6	S DR 11		S DR 9		S DR 7.4		S DR 6		
12.5	PN 16		PN 20		PN 25		PN 32		
Weight	W.T.	Weight	W.T.	Weight	W.T.	Weight	W.T.	Weight	
Kg/m	mm	Kg/m	mm	Kg/m	mm	Kg/m	mm	Kg/m	mm
	1.9	0.113	2.3	0.13	2.8	0.156	3.4	0.182	20
	2.3	0.173	2.8	0.19	3.5	0.242	4.2	0.281	25
0.234	2.9	0.275	3.6	0.32	4.4	0.390	5.4	0.458	32
0.36	3.7	0.434	4.5	0.52	5.5	0.606	6.7	0.708	40
0.55	4.6	0.672	5.6	0.79	6.9	0.946	8.3	1.09	50
0.87	5.8	1.06	7.1	1.27	8.6	1.48	10.5	1.74	63
1.24	6.8	1.48	8.4	1.78	10.3	2.10	12.5	2.46	75
1.78	8.2	2.14	10.1	2.56	12.3	3.02	15.0	3.54	90
2.63	10.0	3.17	12.3	3.81	15.1	4.52	18.3	5.28	110
3.39	11.4	4.12	14.0	4.92	17.1	5.82	20.8	6.80	125
4.25	12.7	5.13	15.7	6.17	19.2	7.30	23.3	8.54	140
5.54	14.6	6.72	17.9	8.02	21.9	9.51	26.6	11.13	160
7.03	16.4	8.50	20.1	10.55	24.6	12.03	29.9	14.07	180
8.59	18.2	10.50	22.4	12.55	27.4	14.89	33.2	17.38	200
10.96	20.5	13.30	25.2	15.89	30.8	18.80	37.4	22.00	225
13.50	22.7	16.40	27.9	19.53	34.2	23.21	41.6	27.14	250
16.90	25.4	20.50	31.3	24.55	38.3	29.10	46.5	34.05	280
21.43	28.6	25.88	35.2	31.06	43.1	36.85			315
27.16	32.2	32.83	39.7	39.44	48.5	46.71			355
34.45	36.3	41.69	44.7	50.04					400
43.68	40.9	52.80	50.3	62.7					450

Table 6 HDPE 80 PIPE DIMENSION CONFORMING TO ISO 4427/ DIN 8074
Design Stress = 6.3 MPa

O.D.	S 10		S 6.3		S 5		S 4	
	5DR 21		5DR 13.6		5DR 11		5DR 9	
	PN 6.3		PN 10		PN 12.5		PN 16	
	W.T.	Weight	W.T.	Weight	W.T.	Weight	W.T.	Weight
mm	mm	Kg/m	mm	Kg/m	mm	Kg/m	mm	Kg/m
16							1.8	0.085
20			1.8	0.108	1.9	0.113	2.3	0.134
25			1.9	0.145	2.3	0.172	2.8	0.201
32			2.4	0.234	3.0	0.273	3.6	0.328
40	1.9	0.241	3.0	0.36	3.7	0.432	4.5	0.511
50	2.4	0.327	3.7	0.55	4.6	0.669	5.6	0.791
63	3.0	0.584	4.7	0.9	5.8	1.05	7.1	1.27
75	3.6	0.834	5.6	1.2	6.8	1.48	8.4	1.77
90	4.3	1.2	6.7	1.8	8.2	2.13	10.1	2.55
110	5.3	1.8	8.1	2.6	10.0	3.15	12.3	3.80
125	6.0	2.3	9.2	3.4	11.4	4.10	14.0	4.89
140	6.7	2.8	10.3	4.2	12.7	5.10	15.7	6.14
160	7.7	3.7	11.8	5.5	14.6	6.70	17.9	7.99
180	8.6	4.7	13.3	7.0	16.4	8.46	20.1	10.1
200	9.6	5.8	14.7	8.6	18.2	10.44	22.4	12.5
225	10.8	7.3	16.6	10.9	20.5	13.16	25.2	15.9
*250	11.9	9.0	18.4	13.5	22.7	16.27	27.9	19.5
*280	13.4	11.3	20.6	16.9	25.4	20.39	31.3	24.4
*315	15.0	14.3	23.2	21.3	28.6	25.71	35.2	30.9
*355	16.9	18.1	26.1	27.0	32.2	32.64	39.7	39.3
*400	19.1	23.0	29.4	34.2	36.2	41.47	44.7	49.8
*450	21.5	29.0	33.1	43.4	40.9	52.52	50.3	63.0

Note: * Can be supplied on special request; W.T. - Wall Thickness; O.D. - Outside Diameter;
SDR - Standard Dimension Ratio; S - Pipe Series #; PN - Nominal Pressure

Pipe for Drip and Irrigation Work

Application:

LDPE Pipe which is especially suited to the Saudi Arabian climate is intended for use in above or below ground drip irrigation networks. This system optimises the use of water in arid regions by supplying water at low pressure, exactly where it is needed directly to the roots of the plant. Loss by evaporation is minimized and water consumption is conserved.

Table 7 LDPE Pipe Dimensions based on DIN 8072 from sizes 16mm to 32mm OD with a working pressure of 4 barso at 20 C.

Outside Diameter	Wall Thickness
16 mm	1.2 mm / 1.5 mm
20 mm	1.5 mm
25 mm	1.5 mm / 2.0
32 mm	mm 2.0 mm

Table 8 LDPE Pipe Dimensions based on Australian Standard AS 2698.1 for drip irrigation Tubing (Type 30), with a working pressure of 3 bars at 20° C.

Normal Size (MM)	Nominal Inside Diameter (MM)	Wall Thickness	Normal Weight (kg / m)
13	12.9	1.2	0.051
16	16.0	1.2	0.062
19	19.1	1.3	0.080
25	25.4	1.5	0.121
32	31.7	2.0	0.200

Table 9 GR Dripline. Lengths for 10% Flow Variation on Ground with Zero SLDPE. Single Emitter Combination

Code No.	S cm	Q LPH	Wt. Kg.	Code No.	S cm	Q LPH	Wt. Kg.	Code No.	S cm	Q LPH	Wt. Kg.
GR 16433	33	4	22.95	GR 16240	40	2	22.00	GR 20440	40	4	31.00
GR 16440	40	4	22.45	GR 16250	50	2	21.45	GR 20450	50	4	30.00
GR 16450	50	4	21.70	GR 16260	60	2	21.00	GR 20460	60	4	29.35
GR 16460	60	4	21.25	GR 16275	75	2	20.75	GR 20475	75	4	28.00
GR 16475	75	4	20.75	----	----	----	----	----	----	----	----

Table 10 Physical Properties of LDPE

Property	Value
Denisty @ 23°C	0.923 g/cm3
Melt Index (190°C / 5 kg)	1.0 gm / min
Brittleniss Temperature	< -70°C
Tensile Strength	11.5 Mpa
Elongation @ Break	800%
Flexural Modulus	220 Mpa
Melting Temperature	124° C
Carbon Black Content	2%

AL-WAREEF Subduct & Miniduct HDPE Pipe for Electrical Conduit & Fiber Optic Cable

Table 11 HDPE Ducts as per DIN 8074

Size	Wall Thickness	Weight / meter
25 MM	1.5 MM	0.1125 kg / m
32 MM	2.0 MM	0.196 kg / m
32 MM	3.0 MM	0.279 kg / m
40 MM	3.7 MM	0.430 kg / m
50 MM	2.9 MM	0.44 kg / m
50 MM	4.6 MM	0.666 kg / m



Standard Length: 300m to 500m. Other length are available on request.

The color of HDPE Duct is black. Other length are available on request.

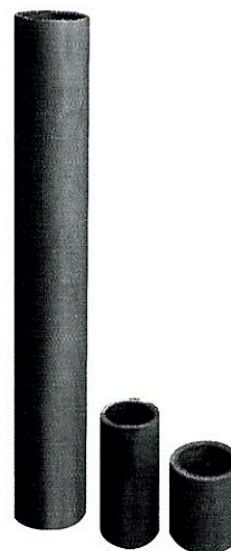
Table 12 HDPE Fiber Optic Ducts with orange stripe as per DIN 80741504427/, PE100 5DR11

Size	Wall Thickness	Weight / meter
110 MM	10 MM	3.17 kg / m
125 MM	11.4 MM	4.12 kg / m

Standard Length: 100 m to 200 m

Advantages of AL-WAREEF HDPE Duct

- Flexible & light weight which allows remarkable direction changes without the use of joints.
- Smooth bore with very low friction for cable placement.
- Excellent shock resistant even at low temperature.
- Corrosion resistant & highly resistant to most chemical agents and micro-organisms.
- Good weathering resistant & the black color is effective protection against Ultra-violet radiation.

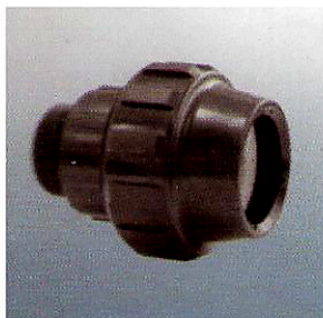




COMPRESSION FITTINGS

Sizes Range: 20 mm up to 63 mm PN 16, 75 mm up to 125 mm PN 10

Male Adaptor with BSP Thread



W 101

mm x inch
20 x 1/2"
20 x 3/4"
31 x 1"
40 x 1 1/4"
50 x 1 1/2"
63 x 2"
75 x 2 1/2"
90 x 3"
90 x 4"
110 x 3"
110 x 4"
125 x 4"
125 x 5"

mm x inch
20 x 1/2"
20 x 3/4"
31 x 1"
40 x 1 1/4"
50 x 1 1/2"
63 x 2"
75 x 2 1/2"
90 x 3"
110 x 4"

Female Adaptor



W 102

End Cap

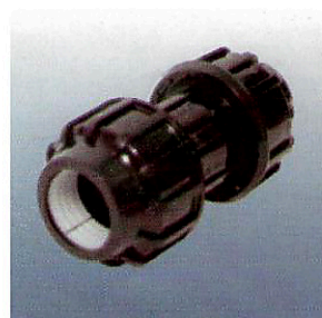


W 103

mm
20
25
32
40
50
63
75
90
110
125

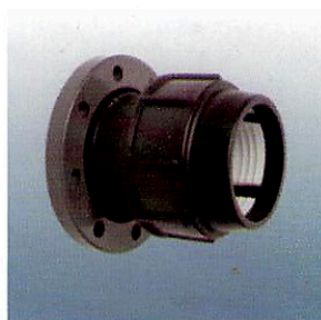
mm x inch
20 x 20
25 x 25
32 x 32
40 x 40
50 x 50
63 x 63
75 x 75
90 x 90
110 x 110
125 x 125

Connector Coupling



W 104

Flange Joint



W 105

mm
125 x 5"
125 x 6"
160 x 6"



COMPRESSION FITTINGS

Sizes Range: 20 mm up to 63 mm PN 16, 75 mm up to 125 mm PN 10

Tee with BSP Thread (Male)



W 106

mm x inch x mm

20 x 1/2" x 20
25 x 3/4" x 25
31 x 1" x 32
40 x 1 1/4" x 40
50 x 1 1/2" x 50
63 x 2" x 63
75 x 2 1/2" x 75
90 x 3" x 90
110 x 4" x 110

mm x inch x mm

20 x 1/2" x 20
25 x 3/4" x 25
31 x 1" x 32
40 x 1 1/4" x 40
50 x 1 1/2" x 50
63 x 2" x 63
75 x 2 1/2" x 75
90 x 3" x 90
110 x 4" x 110

Tee with BSP Thread (Female)



W 107

90° Elbow Coupling



W 108

mm x inch x mm

20 x 20
25 x 25
32 x 32
40 x 40
50 x 50
63 x 63
75 x 75
90 x 90
110 x 110

mm x inch x mm

20 x 20 x 20
25 x 25 x 25
32 x 32 x 32
40 x 40 x 40
50 x 50 x 50
63 x 63 x 63
75 x 75 x 75
90 x 90 x 90
110 x 110 x 110

Tee with BSP Thread (Female)



W 109

90° Tee with BSP Thread (Male)



W 110

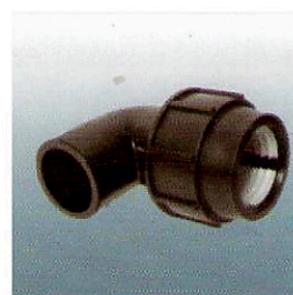
mm x inch x mm

20 x 1/2"
25 x 3/4"
32 x 1"
40 x 1 1/4"
50 x 1 1/2"
63 x 2"
75 x 2 1/2"
90 x 3"
110 x 4"

mm x inch x mm

20 x 1/2"
25 x 3/4"
32 x 1"
40 x 1 1/4"
50 x 1 1/2"
63 x 2"
75 x 2 1/2"
90 x 3"
110 x 4"

90° Tee with BSP Thread (Female)



W 111

Reducer Coupling



W 112

mm x mm

25 x 20
32 x 25
40 x 32
50 x 40
63 x 32
63 x 40
63 x 50
75 x 50

mm x mm

75 x 63
90 x 50
90 x 75
110 x 50
110 x 63
110 x 75
110 x 90
125 x 110

CLAMP SADDLE

Clamp Saddle with four Bolts



W 113

mm x inch x mm
63 x 1/2"
63 x 3/4"
63 x 1"
63 x 1 1/4"
63 x 1 1/2"
75 x 1/2"
75 x 3/4"
75 x 1"
75 x 1 1/4"
75 x 1 1/2"
75 x 2"
90 x 1/2"
90 x 3/4"
90 x 1"
90 x 1 1/4"
90 x 1 1/2"
90 x 2"
90 x 2 1/2"
110 x 1/2"
110 x 3/4"
110 x 1"
110 x 1 1/4"
110 x 1 1/2"
110 x 2"
110 x 2 1/2"
110 x 3"
125 x 1/2"
125 x 3/4"
125 x 1"
125 x 1 1/4"
125 x 1 1/2"
125 x 2"
125 x 2 1/2"
125 x 3"
125 x 4"
160 x 1/2"
160 x 3/4"
160 x 1"
160 x 1 1/4"
160 x 1 1/2"
160 x 2"
160 x 2 1/2"
160 x 3"
160 x 4"

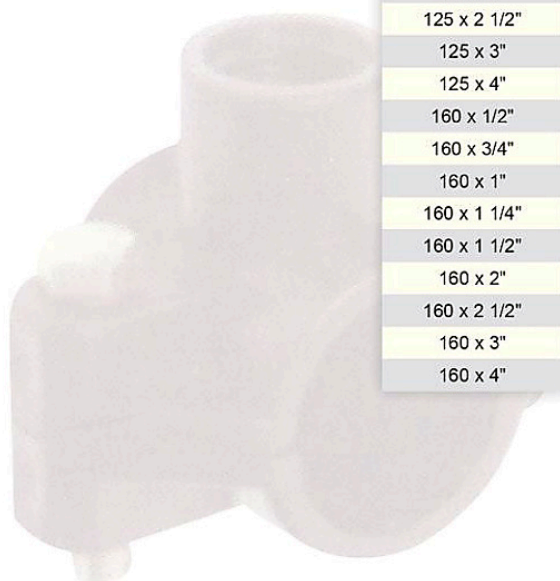


Clamp Saddle with two Bolts

mm x inch
25 x 1/2"
25 x 3/4"
32 x 1/2"
32 x 3/4"
32 x 1"
40 x 1/2"
40 x 3/4"
40 x 1"
50 x 1/2"
50 x 3/4"
50 x 1"



W 114





AGRICULTURAL SPRAYER BASE



63		
1/2"	3/4"	1"



BUTTWELD MOULDED FITTINGS

Flange Adapter**W 501**

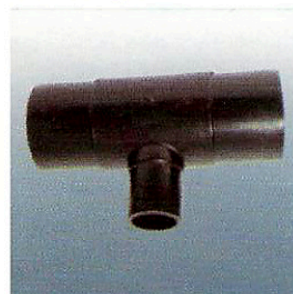
SDR 11 (mm)	SDR 17 (mm)
63	
75	
90	90
110	110
125	125
140	140
160	160
180	180
200	200
225	225
250	250
280	280
315	315
355	355
400	400
450	450
500	500

SDR 11 (mm)	SDR 17 (mm)
63	
75	
90	90
110	110
125	125
140	140
160	160
180	180
200	200
225	225
250	250
280	280
315	315
355	355
400	400
450	450
500	500

Elbow 90°**W 502****Equal Tee****W 503**

SDR 11 (mm)	SDR 17 (mm)
63	
75	
90	90
110	110
125	125
140	140
160	160
180	180
200	200
225	225
250	250
280	280
315	315
355	355
400	400
450	450
500	500

SDR 11 mm x mm x mm	SDR 17 mm x mm x mm
90 x 50 x 90	90 x 50 x 90
110 x 63 x 110	110 x 63 x 110
125 x 90 x 125	125 x 90 x 125
160 x 110 x 160	160 x 110 x 160
200 x 160 x 200	200 x 160 x 200
225 x 110 x 225	225 x 110 x 225
250 x 160 x 250	250 x 160 x 250
315 x 250 x 315	315 x 250 x 315

Reducer Tee**W 504**

SDR 11 mm x inch	SDR 17 mm x inch
63 x 50	63 x 50
75 x 63	75 x 63
90 x 63	90 x 63
90 x 75	90 x 75
110 x 63	110 x 63
110 x 75	110 x 75
110 x 90	110 x 90
125 x 90	125 x 90
125 x 110	125 x 110
140 x 90	140 x 90
140 x 110	140 x 110
140 x 125	140 x 125
160 x 90	160 x 90
160 x 110	160 x 110
160 x 140	160 x 140
180 x 90	180 x 90
180 x 110	180 x 110
180 x 160	180 x 160

SDR 11 mm x inch	SDR 17 mm x inch
200 x 160	200 x 160
200 x 180	200 x 180
225 x 110	225 x 110
225 x 160	225 x 160
225 x 200	225 x 200
250 x 160	250 x 160
250 x 225	250 x 225
280 x 250	280 x 250
315 x 200	315 x 200
315 x 250	315 x 250
315 x 280	315 x 280
355 x 250	355 x 250
355 x 315	355 x 315
400 x 315	400 x 315
400 x 355	400 x 355
450 x 400	450 x 400

Reducer**W 505**

BUTTWELD FABRICATED FITTINGS

30° ELBOW - FABRICATED (30 E)



W 506

SDR 11 (mm)	SDR 17 (mm)
90	90
110	110
125	125
140	140
160	160
180	180
200	200
225	225
250	250
280	280
315	315
355	355
400	400
450	450
500	500

45° ELBOW - FABRICATED (40 E) (30 E)

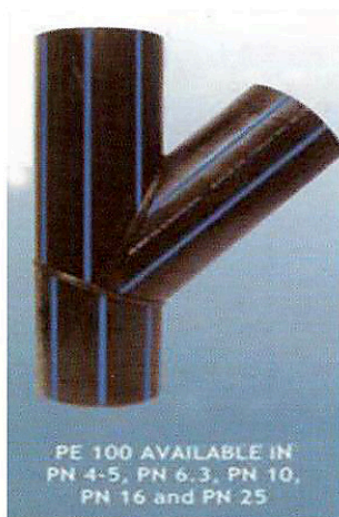


W 507

SDR 11 (mm)	SDR 17 (mm)
90	90
110	110
125	125
140	140
160	160
180	180
200	200
225	225
250	250
280	280
315	315
355	355
400	400
450	450
500	500

BUTTWELD FABRICATED FITTINGS

45° TEE Fabricated (45 T)



W 508

SDR 11 (mm)	SDR 17 (mm)
90	90
110	110
125	125
140	140
160	160
180	180
200	200
225	225
250	250
280	280
315	315
355	355
400	400
450	450
500	500

60° ELBOW Fabricated (60 E)



W 509

SDR 11 (mm)	SDR 17 (mm)
90	90
110	110
125	125
140	140
160	160
180	180
200	200
225	225
250	250
280	280
315	315
355	355
400	400
450	450
500	500

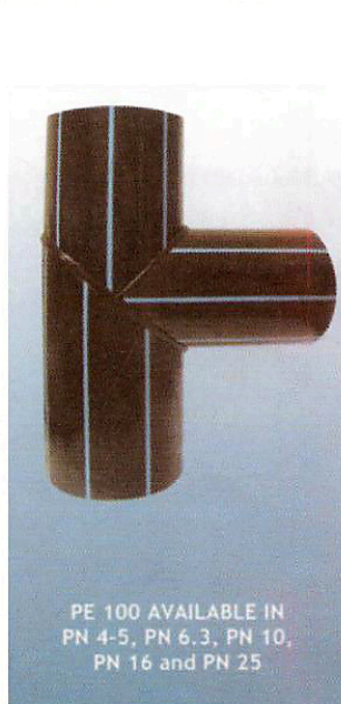
90° ELBOW Fabricated (90 E)



W 510

SDR 11 (mm)	SDR 17 (mm)
90	90
110	110
125	125
140	140
160	160
180	180
200	200
225	225
250	250
280	280
315	315
355	355
400	400
450	450
500	500

90° TEE Fabricated (90 T)



W 511

SDR 11 (mm)	SDR 17 (mm)
90	90
110	110
125	125
140	140
160	160
180	180
200	200
225	225
250	250
280	280
315	315
355	355
400	400
450	450
500	500

INTERNAL (BARBED) FITTINGS

TEE Equal


W 601

mm x mm x mm

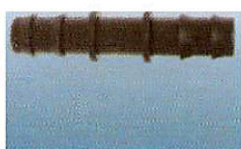
16 x 16 x 16
19 x 19 x 19
20 x 20 x 20
25 x 25 x 25
32 x 32 x 32

mm x mm x mm

19 x 13 x 19
19 x 16 x 19
20 x 16 x 20
25 x 16 x 25
25 x 20 x 25
32 x 16 x 32
32 x 20 x 32

TEE Reducer


W 602

Connector I Joint


W 603

mm x mm x mm

4 x 4
16 x 16
19 x 19
20 x 20
25 x 25
32 x 32

mm x mm x mm

3/4" x 1/2"
1" x 1/2"
1" x 3/4"
1 1/2" x 1"
2" x 1"
2" x 1 1/2"
3" x 2"
4" x 2"
4" x 3"

Reducer Nipple I Male


W 604

Elbow


W 605

mm x mm x mm

16 x 16
19 x 19
20 x 20
25 x 25
16 x 1/2", 3/4"
19 x 1/2", 3/4", 1
20 x 1/2", 3/4", 1
25 x 1/2", 3/4", 1

mm x mm x mm

16
20
25

End Stop - Shape 8


W 606

Male Adaptor BSP Thread


W 607

mm x mm x mm

16 x 1/2"
16 x 3/4"
19 x 1/2"
19 x 3/4"
20 x 1/2"
20 x 3/4"
25 x 1/2"
25 x 3/4"
25 x 1"
32 x 1"
50 x 1 1/2"
63 x 2

mm x mm x mm

16 x 1/2" x 16
16 x 3/4" x 16
19 x 1/2" x 19
19 x 3/4" x 19
19 x 1" x 19
20 x 1/2" x 20
20 x 3/4" x 20
25 x 1/2" x 25
25 x 3/4" x 25
25 x 1" x 25
32 x 1" x 32

TEE with Thread


W 608



ON LINE DRIPPERS

AL-WAREEF Adjustable Flow



Code.	Discharge L/H
W-ED-TK001	0 - 50
W-ED-TK002	0 - 100

Advantages:

The dripper has the following advantages:

- No complicated channels or nozzles which can be clogged.
- Simple installation
- Easy operation
- Efficient water distribution

AL-WAREEF adjustable dripper is ideal for flower bed, shrubs, trees and

Application:

- A laminar flow emitter with a precise and uniform flow characteristics.
- Ideal for irrigation fruit trees and vegetables.
- Easy to use in landscape irrigation applications due to the possibility to mounting it on a 4mm 1.0. spaghetti tube at its outlet.

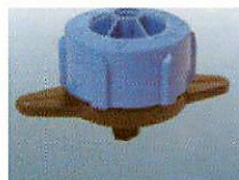
Main Features:

- Main dripper is a simple to use on-line emitter.
- Removable cap for easy inspection and cleaning.
- Features a lock that protects cap.
- Easy to install in the field.

AL-WAREEF E2-Emitter



AL-WAREEF TURBO KEY



Code No.	Nominal Discharge	Pressure (Bar)		
		1.00	1.5	2.00
W-ED-TK001	4L1 HR	4.00	4.80	5.40
W-ED-TK002	8L1 HR	9.00	9.00	10.50
W-ED-TK003	2L1 HR	2.05	2.10	2.10
W-ED-TK004	4L1 HR	4.10	4.10	4.20
W-ED-TK005	8L1 HR	8.20	8.20	8.30

T.K Non Pressure Compensating Drip Emitter

- Turbulent flow to resist blockage> Dripperline stability provided by logs in base
- Clean easily due to its removable inlet
- 4mm Barbed inlet

Applications: Landscaping, Orchards, Vineyards, Green Houses, Shrubs.

Bubbler Stake (16 x 12)



Code.	Nominal Discharge
W-ED-S001	16 x 1/2"

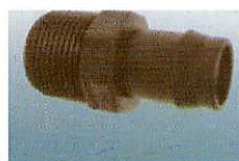
AL-WAREEF stake could be used for Bubblers, Pop-up Sprinklers etc. which has female thread of 12" stake inlet 13mm outlet 12".

BUBBLERS



Code.	Description	Type	Discharge L / H
W-ED-S001	Adjustable Bubbler	RA	300 L / H
W-ED-S002	Adjustable Bubbler	RB	0 - 650 L / H
W-ED-S003	Adjustable Bubbler	RC	0 - 650 L / H
W-ED-S004	Pressure Compensated Bubbler	RBC	0.25, 0.5, 1.0, 2.0 G.P.M

Starter for Central Pivot Sprayer



Central Pivot Accessories

Code.	mm x inch	Code.	mm x inch
W-IBF-MA008	19 x 3/4"	W-ED-CP001	From 1.0 to 10.0

Central Pivot Sprayer



AL-WAREEF VALVES



Code No.
60 x 16
16 x 1/2"
13 x 3/4"
16 x 1"
20 x 20
20 x 1/2"
30 x 3/4"
20 x 1"
25 x 25
25 x 1/2"
25 x 3/4"
25 x 1"
32 x 32
32 x 1/2"
32 x 3/4"
32 x 1"

AL-WAREEF DIS FILTER



SIZE (INCHES)			
1 1/2"	2"	3"	4"

Single Union, B.s. Parallel Male I Female Threaded

G "	ON mm"	PN a 20° bar	Weight gr.
3/4"		16	100
1"	251"	16	200
1 1/2"	40 1 1/2"	16	480
2"	50 2"	16	832



Single Union, B.s. Parallel Female Threaded

G "	ON mm"	PN a 20° bar	Weight gr.
3/4"		16	100
1"	251"	16	210
1 1/2"	40 1 1/2"	16	485
2"	50 2"	16	838



VALVE BOX

PRODUCT	DESCRIPTION
Valve Box 6"	Series 610 (6" Round Valve Box)
Valve Box 10"	Series 910 (10" Round Valve Box)
Valve Box 12"	Series 1419 (Standard 12" Rectangular Valve Box)
Valve Box 20"	Series 1320 (Rectangular Jumbo Valve Box)



GR-PIPES



أطوال المد الأقصى الموصى بها (متر)
أنبوب جي آر ١٦ ملم

المسافة بين المنقطات / سم							التدفق لتر / ساعة
100	80	60	50	40	30	20	
86	80	65	55	45	35	25	4
55	45	35	30	25	20	15	8

MACHINE AGRICULTURAL FILM



Size	Wall Thickness
60 cm	18 - 40 micron
70 cm	18 - 40 micron
80 cm	18 - 40 micron
90 cm	18 - 40 micron
100 cm	18 - 40 micron
120 cm	18 - 40 micron
140 cm	18 - 40 micron
160 cm	18 - 40 micron
180 cm	18 - 40 micron
200 cm	18 - 40 micron



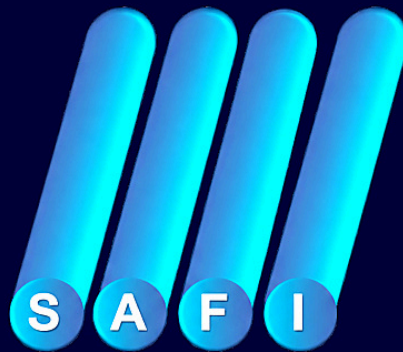
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Tel : +962 6 4892 873

Fax : +962 6 4871 943

Email : kurdiplastic@hotmail.com

P.O.Box 340500 Jordan



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