

WE COUNT EVERY DROP

IRRIGATION PRODUCT

2021 - 2022



Pipe



Barbed Fittings



Compression Fittings



Clamp Saddles



Turf & Agriculture



Valve Box



New Product



Green Saudis
السعودية الخضراء

COMPANY PROFILE

ALWASAIL IRRIGATION SYSTEMS Manufacturer was established in 1990 registered office at Riyadh, capital city of Kingdom of Saudi Arabia. Factory is located at Buraidah Al-Qassim Industrial City about 350 km away from the capital in its own freehold area of 225,000 Sq.M.

ALWASAIL IRRIGATION SYSTEMS are the largest manufacturer and supplier of polyethylene (HD & LD) pipes & related fittings and irrigation equipments.

We are committed to international quality standards for our products. Performance and reliability are the hallmarks of our products. This approach have helped our products and services succeed in some of the world's most advance markets.

And in just 14 years, we have set up a global marketing network that covers over 30 countries today. Also, we have Branches in the Kingdom of Saudi Arabia.

In meeting the market demand for high quality products **ALWASAIL IRRIGATION** products has achieved numerous recognition various national certification like Saudi Arabian standard & ARAMCO Approved.

In 2002, the company has awarded the prestigious ISO 9002 (Registration No. 0410021944) for a wide variety of HDPE, LLDPE & LDPE pipes, barbed and compression fittings, clamp saddles, dripper bubbler, sprinklers, valves boxes, filters, risers, threaded fittings & other irrigation equipments.

ALWASAIL IRRIGATION is pleased to present this catalogue of irrigation equipment which is the result of the combined experience and advance engineering techniques of a group of the most respected names in the Irrigation industry.

ALWASAIL IRRIGATION Also Provided Technical Support services including system planning and design to ensure that these high quality components form an efficient and cost-effective irrigation system.

ALWASAIL IRRIGATION has a policy of continual improvement of products & practices, and therefore company may change product specifications without prior notice and without liability.



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Introduction

AlWasail Irrigation Systems are a leading manufacturer of Polyethylene pipe & fittings, Irrigation equipments and have pioneered many of the developments in production technology. This continuing development together with the introduction of latest techniques and equipments ensures that the **AlWasail** products are produced to a high standard in excess of the exacting requirement of many count, Quality assurance organisations. Strict quality control through all stages of production is maintained by Al-Wasail in House Laboratory. The production facility is certified to ISO 9002.

Based on many years of experience and making use of proper materials and technology, as well as well experienced technical experts.

AlWasail Irrigation products enjoy high quality rate and are widely used in water conveyance industries, under pressurized irrigation networks and etc.,

Our Main Objectives are to help:

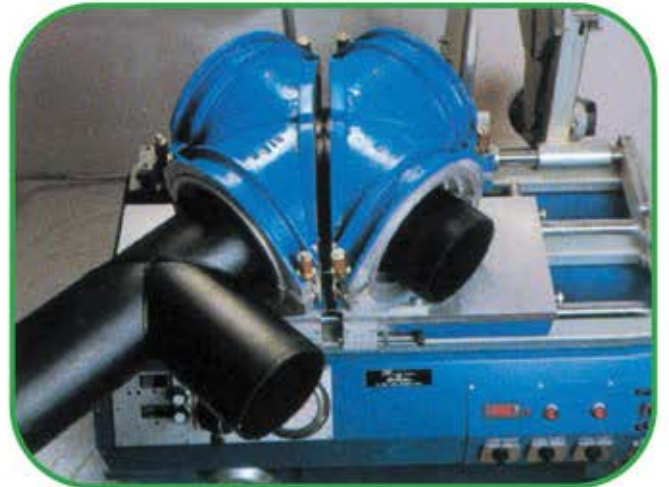
Our Client, farmers, orchard owners and other end users to make proper use of water and soil resources.

Increase irrigation efficiency, bring about more yield attain the higher rate of profit over expenses, while keeping the water and soil resources away from pollution and degradation.



Total Piping Solution

OUR FACILITIES FOR YOU AT A GLANCE...



HIGH DENSITY POLYETHYLENE PIPE

Applications

Polyethylene piping systems are widely used all over the world for the supply and conveying of several kind of media, including liquid, gas, water and powders as well as in mining and quarry applications.

Polyethylene pipe work systems have the mean advantages over steel or ductile iron systems if lightness of weight and freedom from corrosion.

The rapid growth in use of Polyethylene is due in part to benefits over steel and iron systems, but possibly more to the development of several different advanced and easy jointing techniques.

Polyethylene has very good fatigue strength and special provision for surges frequently allowed when designing other thermoplastic pipe work system.



HIGH DENSITY POLYETHYLENE PIPE

Applications

Drinking Water Supply
Irrigation Systems.
Gas Pipelines
Civil and Industrial Processes Pipe works
Sewage, Drainage & Waste Water Pipelines
Chemical Industries
Relining of Old Pipelines.
Submarine Pipelines
Water Treatment Plants
Electrical Conduits (Above & underground cable ducting)
Cold and Hot Water Supply
Water wells
Pools
Sea-Water applications
Mining Industries
Anti-fire mains.
Column pipes for submersible pumps
Compression line
Lift and gravity Water Supply Systems

Features and Benefits

Low specific weight
Perfect Weldability
Radiation, Rodents Freeze Resistant
Non-Toxic and Non Contaminating.
Suitable for Food and Potable Water.
Comply with Food Stuff Regulations.
Hot and Cold Water Resistant
Easy Jointing Leading to Reduce the Costs.
Easy Installation and Maintenance
No Requirement for Protective coating
Low Friction bores not liable to slag buildup.
Smooth inner walls minimises frictional losses
Less Pressure drop compared to other pipe.
High flow characteristics,
Ultra violet rays resistance
Weathering resistance
Very good chemical resistance
Excellent Heat aging resistance
Outstanding abrasion resistance
Radiation resistance
Rodents resistance
Freeze resistance
Mechanical & Impact resistant
Resistance to microbiological attacks.



MANUFACTURING STANDARD

AlWasail Polyethylene Pipes are Manufacturing in Accordance to International Standard.

HDPE Pipe : DIN 8074
DIN 8075
ISO 4427
ISO 4437
UNI Standard & Aus

Sizes : Manufactured upto 1200mm sizes at various Pressure rating 2.5 Bar to 25 Bar

Food Regulation :

Materials are complies with recommendations and statutory regulations in the USA & most european countries regarding materials intended to come in contact with food stuff.

Certifications :

AlWasail PP Threaded fittings have been approved by TUV CERT ISO 9002 Certification body of RW TUV gmph.

Pipes Color :

The color of the PE pipe is black especially to provide high protection to degradation due to the UV radiation and so there is no limitation in external use of PE pipe. as they are designed to withstand continuous solar radiation over a 50 year period at leasts.

Pipes Length :

Up to OD 125mm the PE pipes are available in coils of 100 meters standard length.
Large diameters are supplied in straight rods 12 meters long.

Available on Request :

* Other length * Color * Pipes in other PN/SDR Classes

Thermal Expansion and Contraction :

The coefficient of thermal expansion / contraction for PE Pipe is approximately : 0.0002 mm/mm/°c

Raw Materials :

ALWASAIL polyethylene pipes are manufactured using two kinds of basic polymers:

- HDPE - (PE 80)
- HDPE - (PE 100) High density polyethylene (density = 0,950 g/cm3)

The above materials contain choice polymer and high quality Carbon-Black to get long life under every working and weather conditions.

Each material has its own application field, attractions and particular benefits depending on working and installation condition, equipment available and personal preference.

The raw materials used by ALWASAIL are carefully selected among the best available on the market. Produced from the polymerization of ethylene they are the outcome of long exhaustive research carried out by polymer manufacturers in company labs and specialized institutes. The results so far attained can be summed up in excellent stress-cracking resistance, tensile strength and weldability.

The molecular structure of polymers used to manufacture pipes guarantee their mechanical characteristics with wide margins of safety for at least 400-500.000 h of uninterrupted service at the nominal pressure NP and a temperature of 20°C.

A period of 50 years is reported as a system average lifetime. A polymer strength can be tested by carrying out various pressure tests on pipe specimens.

In compliance with ISO Standards tests are carried out at a fixed wall hoop stress s and temperature T and their duration recorded on logarithmic graphs (stress s , lifetime t , temperature T) obtaining a series of lines called regression curves. From such curves, which are different for each material, it is possible to predict a pipe lifetime or, after fixing the working period t and temperature T , trace back to the wall stress and therefore calculate a pipe wall thickness.

GENERAL PROPERTIES OF PE 80

PHYSICAL PROPERTIES		Typical Value*	Unit	Test Method
Density	(Base resin)	946	kg/m ³	ISO 1183
Density	(Compound)	956	kg/m ³	ISO 1183
Melt Flow Rate	(190 °C/2.16 kg)	<0.1	g/10 min	ISO 1133
Melt Flow Rate	(190 °C/5.0 kg)	0.3	g/10 min	ISO 1133
Tensile Stress at Yield	(50 mm/min)	22	MPa	ISO 527-2
Tensile Modulus	(50 mm/min)	1000	MPa	ISO 527-2
Elongation at Yield		9	%	ISO 527-2
Elongation at Break		>600	%	ISO 527-2
Charpy Impact Strength, notched	(0 °C)	14	kJ/m ²	ISO 179/1eA
Carbon Black content		≥2	%	ASTM D 1603
Brittleness Temperature		<-70	°C	ASTM D 746
ESCR	(10% Igepal), F50	>10000	h	ASTM D 1693-A
Thermal Stability	(210 °C)	>15	min	EN 728

GENERAL PROPERTIES OF PE 100

PHYSICAL PROPERTIES		Typical Value*	Unit	Test Method
Density	(Base resin)	949	kg/m ³	ISO 1183 / ISO 1872-2B
Density	(Compound)	959	kg/m ³	ISO 1183 / ISO 1872-2B
Melt Flow Rate	(190 °C/2.16 kg)	<0.1	g/10 min	ISO 1133
Melt Flow Rate	(190 °C/5.0 kg)	0.25	g/10 min	ISO 1133
Tensile Stress at Yield	(50 mm/min)	25	MPa	ISO 527-2
Elongation at Break		>600	%	ISO 527-2
Charpy Impact, notched	(0 °C)	16	kJ/m ²	ISO 868
Hardness, Shore D		60	-	ISO 179/1eA
Carbon Black content		≥2	%	ASTM D 1603
Brittleness Temperature		<-70	°C	ASTM D 746
ESCR	(10% Igepal), F50	>10000	h	ASTM D 1693-A
Thermal Stability	(210 °C)	>15	min	EN 728

DESIGN DATA

Relationship between SDR values and nominal pressure (PN)

In the Europeanised German Industrial Standards DIN 8074/8075 (PE) and the application-oriented DIN-EN and ISO standards being introduced, various safety factors lead to different values for the nominal pressure (PN) for a given geometry, i.e. the ratio of outside diameter to wall thickness (SDR). This table is meant to demonstrate these correlations. In practice, the safety factor can be set according to the requirements of the application. For segment welded fittings, a coefficient for the loss of strength, depending on the design, may be needed.

Relationship between SDR values and nominal pressure

	PE 80	PE 100	PE 80
Safety factor S	1.25	1.25	1.6
SDR		PN ^①	
51	2.5	3.2	
41	3.2	4	2.5
33	4	5	3.2
26	5	6.3	4
22	6	≈ 7.6	
21	6.3	8	5
17.6	≈ 7.6	≈ 9.7	6
17	8	10	6.3
13.6	10	12.5	8
11	12.5	16	10
9	≈ 16	20	12.5
7.4	20	25	≈ 16
6	25		

① PN is valid for water at 20°C and a calculated life expectancy of 50 years

Derating factors to be used for polyethylene pipe at temperatures above 20°C

PE 100 ($\sigma_s = 8.00 \text{ MPa}$)					
Temperature °C	20	25	30	35	40
Reduction Factor	1	0.93	0.87	0.8	0.74
PE 80 ($\sigma_s = 6.3 \text{ MPa}$)					
Temperature °C	20	25	30	35	40
Reduction Factor	1	0.9	0.81	0.72	0.62
PE 80 ($\sigma_s = 5.0 \text{ MPa}$)					
Temperature °C	20		30		40°
Reduction Factor	1		0.68		0.46

HDPE PRESSURE PIPE PE80 = MRS 8 = SIGMA 5.0

Dimensions according to DIN 8074

Material
High Density Polyethylene PE80
MRS = 8.0 Mpa
 σ_s = 5.0 Mpa (MRS / c)
c = 1.6

Note:

PN Nominal Pressure (Bar)
Wt Pipe weight (Kg/m)
S Wall thickness (mm)
Da Nominal Outside Diameter (mm)
SDR Standard dimensional ratio (Dals)
MRS Minimum required strength (Mpa)
 σ_s Hydrostatic Design stress@20c
C Design factor 1.6 for water

Color
Black

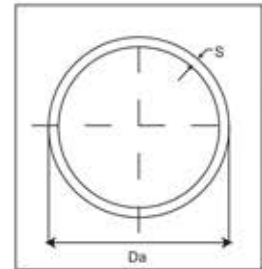
Dimensions
DIN 8074 / 8075

Standard Length

Up to Da 125 = 100m Coil
Da 140-630 = 12m

Available on Request

* Other length
* Color
* Pipes in other PN/SDR classes according to DIN 8074 / 8075



$$PN = \frac{2 \times \sigma_s \times s \times 10}{Da - s}$$

$$\text{Pipe Series} = \sigma_s \times 10 / PN$$

*** Weight may vary according to polymer density. The mass has been calculated taking average density as 0.95 g/cm3. For other densities, the mass shall be established by linear interpolation, taking the wall thickness as the nominal size plus half the tolerance specified.

Nominal Outside Diameter	Pipe Series																	
	S 16			S 12.5			S 8.3			S 5			S 4			S 3.2		
	Standard Dimension Ratio																	
	SDR 33			SDR 26			SDR 17.6			SDR 11			SDR 9			SDR 7.4		
	Nominal Pressure PN for $\sigma_s = 5$ Mpa																	
Da mm	PN 3.2			PN 4			PN 6			PN 10			PN 12.5			PN 16		
	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m
12																8.4	1.8	0.060
16													12.4	1.8	0.084	11.6	2.2	0.099
20							16.4	1.8	0.107	16.2	1.9	0.112	15.4	2.3	0.133	14.4	2.8	0.154
25							21.4	1.8	0.137	20.4	2.3	0.171	19.4	2.8	0.200	18.0	3.5	0.240
32							28.4	1.8	0.179	26.2	2.9	0.272	24.8	3.6	0.327	23.2	4.4	0.386
40				36.4	1.8	0.227	35.4	2.3	0.285	32.6	3.7	0.430	31.0	4.5	0.509	29.0	5.5	0.600
50	46.4	1.8	0.287	46.0	2.0	0.314	44.2	2.9	0.440	40.8	4.6	0.666	38.8	5.6	0.788	36.2	6.9	0.936
63	59.0	2.0	0.399	58.0	2.5	0.494	55.8	3.6	0.688	51.4	5.8	1.050	48.8	7.1	1.260	45.8	8.6	1.470
75	70.4	2.3	0.551	69.2	2.9	0.675	66.4	4.3	0.976	61.4	6.8	1.470	58.2	8.4	1.760	54.4	10.3	2.090
90	84.4	2.8	0.791	83.0	3.5	0.978	79.8	5.1	1.390	73.6	8.2	2.120	69.8	10.1	2.540	65.4	12.3	3.000
110	103.2	3.4	1.170	101.6	4.2	1.430	97.4	6.3	2.080	90.0	10.0	3.140	85.4	12.3	3.780	79.8	15.1	4.490
125	117.2	3.9	1.510	115.4	4.8	1.840	110.8	7.1	2.660	102.2	11.4	4.080	97.0	14.0	4.870	90.8	17.1	5.770
140	131.4	4.3	1.880	129.2	5.4	2.320	124.0	8.0	3.340	114.6	12.7	5.080	108.6	15.7	6.110	101.6	19.2	7.250
160	150.2	4.9	2.420	147.6	6.2	3.040	141.8	9.1	4.350	130.8	14.6	6.670	124.2	17.9	7.690	116.2	21.9	9.440
180	169.0	5.5	3.070	166.2	6.9	3.790	159.6	10.2	5.480	147.2	16.4	8.420	139.8	20.1	10.100	130.8	24.6	11.900
200	187.6	6.2	3.840	184.6	7.7	4.690	177.2	11.4	6.790	163.6	18.2	10.400	155.2	22.4	12.400	145.2	27.4	14.800
225	211.2	6.9	4.770	207.8	8.6	5.890	199.4	12.8	8.550	184.0	20.5	13.100	174.6	25.2	15.800	163.4	30.8	18.600
250	234.6	7.7	5.920	230.8	9.6	7.300	221.6	14.2	10.600	204.6	22.7	16.200	194.2	27.9	19.400	181.6	34.2	23.000
280	262.8	8.6	7.400	258.6	10.7	9.100	248.2	15.9	13.200	229.2	25.4	20.300	217.4	31.3	24.300	203.4	38.3	28.900
315	295.6	9.7	9.370	290.8	12.1	11.600	279.2	17.9	16.700	257.8	28.6	25.600	244.6	35.2	30.800	228.8	43.1	36.500
355	333.2	10.9	11.800	327.8	13.6	14.600	314.8	20.1	21.200	290.6	32.2	32.500	275.6	39.7	39.100	258.0	48.5	46.300
400	375.4	12.3	15.100	369.4	15.3	18.600	354.6	22.7	26.900	327.4	36.3	41.300	310.6	44.7	49.600	290.6	54.7	58.800
450	422.4	13.8	19.000	415.6	17.2	23.500	399.0	25.5	34.000	368.2	40.9	52.300	349.4	50.3	62.700	327.0	61.5	74.400
500	469.4	15.3	23.400	461.8	19.1	28.900	443.2	28.4	42.000	409.2	45.4	64.500	388.4	55.8	77.300	363.4	68.3	91.800
560	525.6	17.2	29.400	517.2	21.4	36.200	496.6	31.7	52.500	458.4	50.8	80.800	435.0	62.5	97.000	-	-	-
630	591.4	19.3	37.100	581.8	24.1	45.900	558.6	35.7	66.500	515.6	57.2	102.00	-	-	-	-	-	-
710	666.4	21.8	47.20	655.6	27.2	58.40	629.6	40.2	84.40	581.0	64.5	130.00						
800	751.0	24.5	59.70	738.8	30.6	73.90	709.4	45.3	107.00									
900	844.8	27.6	75.60	831.2	34.4	93.40	798.0	52.0	136.00									
1000	938.8	30.6	93.10	923.6	38.2	115.00	886.6	56.7	167.00									
1200	1126.6	36.7	134.00	1108.2	45.9	166.00	1064.0	68.0	241.00									

HDPE PRESSURE PIPE PE80 = MRS 8 = SIGMA 6.3

Dimensions according to DIN 8074

Material
High Density Polyethylene PE80

MRS = 8.0 Mpa

$\sigma_s = 6.3 \text{ Mpa (MRS / c)}$
 $c = 1.25$

Note:

PN Nominal Pressure (Bar)

Wt Pipe weight (Kg/m)

S Wall thickness (mm)

Da Nominal Outside Diameter (mm)

SDR Standard dimensional ratio (Dals)

MRS Minimum required strength (Mpa)

σ_s Hydrostatic Design stress@20c

C Design factor 1.25 for water

Color

Black

Dimensions

DIN 8074 / 8075

Standard Length

Up to Da 125 = 100m Coil

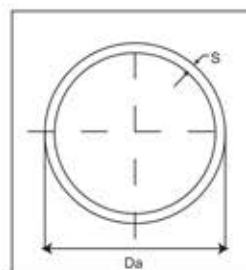
Da 140-630 = 12m

Available on Request

* Other length

* Color

* Pipes in other PN/SDR classes according to DIN 8074 / 8075



$$PN = \frac{2 \times \sigma_s \times s \times 10}{Da - s}$$

$$\text{Pipe Series} = \sigma_s \times 10 / PN$$

*** Weight may vary according to polymer density. The mass has been calculated taking average density as 0.95 g/cm3. For other densities, the mass shall be established by linear interpolation, taking the wall thickness as the nominal size plus half the tolerance specified.

Nominal Outside Diameter	Pipe Series																		
	S 20			S 16			S 10.5			S 6.3			S 5			S 4			
	Standard Dimension Ratio																		
	SDR 41			SDR 33			SDR 22			SDR 13.6			SDR 11			SDR 9			
Da mm	Nominal Pressure PN for $\sigma_s = 5 \text{ Mpa}$																		
	PN 3.2			PN 4			PN 6			PN 10			PN 12.5			PN 16			
	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	
12																			
16																	12.4	1.8	0.084
20										16.4	1.8	0.107	16.2	1.9	0.112	15.4	2.3	0.133	
25										21.2	1.9	0.144	20.4	2.3	0.171	19.4	2.8	0.200	
32										27.2	2.4	0.232	26.2	2.9	0.272	24.8	3.6	0.327	
40							36.2	1.9	0.238	34.0	3.0	0.356	32.6	3.7	0.430	31.0	4.5	0.509	
50				46.4	1.8	0.287	45.4	2.3	0.361	42.6	3.7	0.549	40.8	4.6	0.666	38.8	5.6	0.788	
63	59.4	1.8	0.364	59.0	2.0	0.399	57.2	2.9	0.563	53.6	4.7	0.873	51.4	5.8	1.050	48.8	7.1	1.260	
75	71.2	1.9	0.457	70.4	2.3	0.551	68.0	3.5	0.807	63.8	5.6	1.240	61.4	6.8	1.470	58.2	8.4	1.760	
90	85.6	2.2	0.643	84.4	2.8	0.791	81.8	4.1	1.140	76.6	6.7	1.770	73.6	8.2	2.210	69.8	10.1	2.540	
110	104.6	2.7	0.943	103.2	3.4	1.170	100.0	5.0	1.670	93.8	8.1	2.620	90.0	10.0	3.140	85.4	12.3	3.780	
125	118.8	3.1	1.230	117.2	3.9	1.510	113.6	5.7	2.160	106.6	9.2	3.370	102.0	11.4	4.080	97.0	14.0	4.870	
140	133.0	3.5	1.540	131.4	4.3	1.880	127.2	6.4	2.720	119.4	10.3	4.220	114.6	12.7	5.080	108.6	15.7	6.110	
160	152.0	4.0	2.000	150.2	4.9	2.420	145.4	7.3	3.540	136.4	11.8	5.500	130.8	14.6	6.670	124.2	17.9	7.960	
180	171.2	4.4	2.490	169.0	5.5	3.070	163.6	8.2	4.470	153.4	13.3	6.980	147.2	16.4	8.420	139.8	20.1	10.100	
200	190.2	4.9	3.050	187.6	6.2	3.840	181.8	9.1	5.510	170.6	14.7	8.560	163.6	18.2	10.400	155.2	22.4	12.400	
225	214.0	5.5	3.860	211.2	6.9	4.770	204.4	10.3	7.000	191.8	16.6	10.900	184.0	20.5	13.100	174.6	25.2	15.800	
250	237.6	6.2	4.830	234.6	7.7	5.920	227.2	11.4	8.590	231.2	18.4	13.400	204.6	22.7	16.200	194.2	27.9	19.400	
280	266.2	6.9	5.980	262.8	8.6	7.400	254.4	12.8	10.800	238.8	20.6	16.800	229.2	25.4	20.300	217.4	31.3	24.300	
315	299.6	7.7	7.520	295.6	9.7	9.370	286.2	14.4	13.600	268.6	23.2	21.200	257.8	28.6	25.600	244.6	35.2	30.800	
355	337.6	8.7	9.550	333.2	10.9	11.800	322.6	16.2	17.300	302.8	26.1	26.900	290.6	32.2	32.500	275.6	39.7	39.100	
400	380.4	9.8	12.100	375.4	12.3	15.100	363.6	18.2	21.900	341.2	29.4	34.100	327.4	36.3	41.300	310.6	44.7	49.600	
450	428.0	11.0	15.300	422.4	13.8	19.000	409.0	20.5	27.700	383.8	33.1	43.200	368.2	40.9	52.300	349.4	50.3	62.700	
500	475.4	12.3	19.000	469.4	15.3	23.400	454.4	22.8	34.200	426.4	36.8	53.300	409.2	45.4	64.500	388.4	55.8	77.300	
560	532.6	13.7	23.600	525.6	17.2	29.400	509.0	25.5	42.800	477.6	41.2	66.900	458.4	50.8	80.800	435.0	62.5	97.000	
630	599.2	15.4	29.900	591.4	19.3	37.100	572.6	28.7	54.100	537.4	46.3	84.600	515.6	57.2	102.000	-	-	-	
710	675.2	17.4	38.00	666.4	21.8	47.20	645.4	32.3	68.700	605.6	52.2	107.00	581.0	64.5	130.00				
800	760.8	19.6	48.10	751.0	24.5	59.70	727.2	36.4	87.200	682.4	58.8	136.00							
900	856.0	22.0	60.90	844.8	27.6	75.60	818.0	41.0	110.00	767.8	66.1	172.00							
1000	951.0	24.5	75.20	938.8	30.6	93.10	909.0	45.5	136.00										
1200	1141.2	29.4	108.00	1126.6	36.7	134.00	1090.8	54.6	196.00										

HDPE PRESSURE PIPE PE100 = MRS 10 = SIGMA 8

Dimensions according to DIN 8074

Material
High Density Polyethylene PE100
MRS = 10 Mpa
 σ_s = 8 Mpa (MRS / c)
c = 1.25

Note:

PN Nominal Pressure (Bar)
Wt Pipe weight (Kg/m)
S Wall thickness (mm)
Da Nominal Outside Diameter (mm)
SDR Standard dimensional ratio (Dals)
MRS Minimum required strength (Mpa)
 σ_s Hydrostatic Design stress@20c
C Design factor 1.6 for water

Color
Black

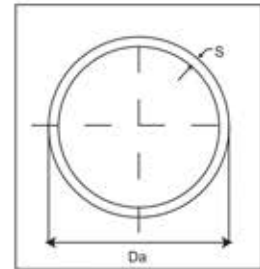
Dimensions
DIN 8074 / 8075

Standard Length

Up to Da 125 = 100m Coil
Da 140-630 = 12m

Available on Request

* Other length
* Color
* Pipes in other PN/SDR classes according to DIN 8074 / 8075



$$PN = \frac{2 \times \sigma_s \times S \times 10}{Da - S}$$

$$\text{Pipe Series} = \sigma_s \times 10 / PN$$

*** Weight may vary according to polymer density. The mass has been calculated taking average density as 0.95 g/cm³. For other densities, the mass shall be established by linear interpolation, taking the wall thickness as the nominal size plus half the tolerance specified.

Nominal Outside Diameter	Pipe Series																	
	S 20			S 12.5			S 8			S 6.3			S 5			S 4		
	Standard Dimension Ratio																	
	SDR 41			SDR 26			SDR 17			SDR 13.6			SDR 11			SDR 9		
	Nominal Pressure PN for σ _s = 5 Mpa																	
Da mm	PN 4			PN 6.3			PN 10			PN 12.5			PN 16			PN 20		
	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m	Nominal Pipe I.D mm	Wall thickness mm	Approx. weight kg/m
12																		
16																12.4	1.8	0.084
20										16.4	1.8	0.107	16.2	1.9	0.112	15.4	2.3	0.133
25							21.4	1.8	0.137	21.2	1.9	0.144	20.4	2.3	0.171	19.4	2.8	0.200
32							28.2	1.9	0.187	27.2	2.4	0.232	26.2	2.9	0.272	24.8	3.6	0.327
40				36.4	1.8	0.227	35.2	2.4	0.295	34.0	3.0	0.356	32.6	3.7	0.430	31.0	4.5	0.509
50				46.0	2.0	0.314	44.0	3.0	0.453	42.6	3.7	0.549	40.8	4.6	0.666	38.8	5.6	0.788
63	59.4	1.8	0.364	58.0	2.5	0.494	55.4	3.8	0.721	53.6	4.7	0.873	51.4	5.8	1.050	48.8	7.1	1.260
75	71.2	1.9	0.457	69.2	2.9	0.675	66.0	4.5	1.020	63.8	5.6	1.240	61.4	6.8	1.470	58.2	8.4	1.760
90	85.6	2.2	0.643	83.0	3.5	0.978	79.2	5.4	1.460	76.6	6.7	1.770	73.6	8.2	2.120	69.8	10.1	2.540
110	104.6	2.7	0.943	101.6	4.2	1.430	96.8	6.6	2.170	93.8	8.1	2.620	90.0	10.0	3.140	85.4	12.3	3.780
125	118.8	3.1	1.230	115.4	4.8	1.840	110.2	7.4	2.760	106.6	9.2	3.370	102.2	11.4	4.080	97.0	14.0	4.870
140	133.0	3.5	1.540	129.2	5.4	2.320	123.4	8.3	3.460	119.4	10.3	4.220	114.6	12.7	5.080	108.6	15.7	6.110
160	152.0	4.0	2.000	147.6	6.2	3.040	141.0	9.5	4.520	136.4	11.8	5.500	130.8	14.6	6.670	124.2	17.9	7.690
180	171.2	4.4	2.490	166.2	6.9	3.790	158.6	10.7	5.170	153.4	13.3	6.980	147.2	16.4	8.420	139.8	20.1	10.100
200	190.2	4.9	3.050	184.6	7.7	4.690	176.2	11.9	7.050	170.6	14.7	8.560	163.6	18.2	10.400	155.2	22.4	12.400
225	214.0	5.5	3.860	207.8	8.6	5.890	198.2	13.4	8.930	191.8	16.6	10.900	184.0	20.5	13.100	174.6	25.2	15.800
250	237.6	6.2	4.830	230.8	9.6	7.300	220.4	14.8	11.000	231.2	18.4	13.400	204.6	22.7	16.200	194.2	27.9	19.400
280	266.2	6.9	5.980	258.6	10.7	9.100	246.8	16.6	13.700	238.8	20.6	16.800	229.2	25.4	20.300	217.4	31.3	24.300
315	299.6	7.7	7.520	290.8	12.1	11.600	277.6	18.7	17.400	268.6	23.2	21.200	257.8	28.6	25.600	244.6	35.2	30.800
355	337.6	8.7	9.550	327.8	13.6	14.600	312.8	21.1	22.100	302.8	26.1	26.900	290.6	32.2	32.500	275.6	39.7	39.100
400	380.4	9.8	12.100	369.4	15.3	18.600	352.6	23.7	28.000	341.2	29.4	34.100	327.4	36.3	41.300	310.6	44.7	49.600
450	428.0	11.0	15.300	415.6	17.2	23.500	396.6	26.7	35.400	383.8	33.1	43.200	368.2	40.9	52.300	349.4	50.3	62.700
500	475.4	12.3	19.000	461.8	19.1	28.900	440.6	29.7	43.800	426.4	36.8	53.300	409.2	45.4	64.500	388.4	55.8	77.300
560	532.6	13.7	23.600	517.2	21.4	36.200	493.6	33.2	54.800	477.6	41.2	66.900	458.4	50.8	80.800	435.0	62.5	97.000
630	599.2	15.4	29.900	581.8	24.1	45.900	555.2	37.4	69.400	537.4	46.3	84.600	515.6	57.2	102.00	-	-	-
710	675.2	17.4	38.00	655.6	27.2	58.40	625.8	42.1	88.100	605.6	52.2	107.00	581.0	64.5	130.00			
800	760.8	19.6	48.10	738.8	30.6	73.90	705.2	47.4	112.00	682.4	58.8	136.00						
900	856.0	22.0	60.90	831.2	34.4	93.40	793.4	53.3	141.00	767.8	66.1	172.00						
1000	951.0	24.5	75.20	923.6	38.2	115.00	881.4	59.3	175.00									
1200	1141.2	29.4	108.00	1108.2	45.9	166.00												

UNDERGROUND PIPELINES FOR WASTE WATER PE 80

Pipe	ISO S-16 3.2 Bar		ISO S-12,5 4.8 Bar		ISO S-8,3 6 Bar	
d _a mm	s mm	weight ≈ kg/m	s mm	weight ≈ kg/m	s mm	weight ≈ kg/m
110	3,5	1,20	4,3	1,46	-	-
125	3,9	1,51	4,9	1,88	7,1	2,66
140	4,4	1,92	5,4	2,32	8,0	3,34
160	5,0	2,47	6,2	3,04	-	-
180	-	-	-	-	10,2	5,48
200	6,2	3,84	-	-	-	-
225	7,0	4,84	8,7	5,96	12,8	8,55
250	7,8	5,99	-	-	-	-
280	8,7	7,47	10,8	9,18	15,9	13,2
315	9,8	9,45	-	-	-	-
355	-	-	13,7	14,7	20,1	21,2
450	14,0	19,2	17,4	23,7	25,5	34,0
560	17,4	29,7	21,6	36,6	31,7	52,5
630	19,6	37,6	24,3	46,3	35,7	66,5

Material

PE 80 - DIN 8075
GKR - code of practice
DIN 19537 part 2

Colour

black

Dimensions

DIN 8074 part 1 -
DIN 19537 part 1
standard length: 6m

Available on request

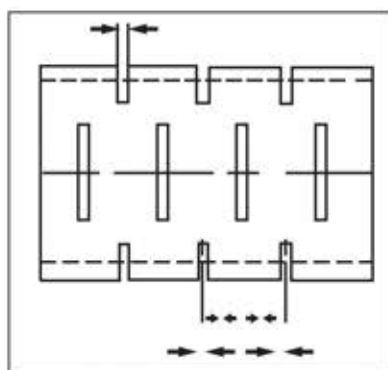
- other dimensions
and lengths

Note:

weldable with all
effluent pipes and
fittings made of PE-HD
according to DIN 8075

Pressure rating

SDR	PN
33	3,2
26	4
17,6	6



Note :

- (i) Range of production is from d_a=90mm upto 450 mm
- (ii) Pipe length and pressure on request

Slotted Pipe

Material

PE-HD

Executions

Slotted pipes

Dimensions

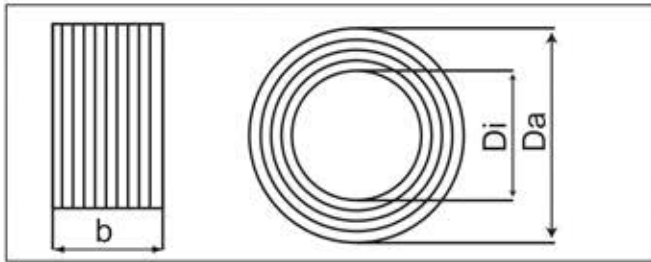
standard length
on request

Colour

black

base slot widths
6 mm, 8 mm,
10 mm, or 12 mm
160 mm and up words

COIL MEASURES



Pipe		Coil		
Da/OD (mm)	L (m)	Da (mm)	Di (mm)	b (mm)
20	50	1010	900	140
	100	1080	900	140
	200	1190	900	180
	300	1220	900	210
25	50	1040	900	190
	100	1130	900	190
	200	1260	900	220
	300	1300	900	270
32	50	1080	900	240
	100	1190	900	240
	200	1300	900	280
	300	1410	900	340
40	50	1120	900	290
	100	1260	900	290
	200	1400	900	370
	300	1540	900	410
50	50	1590	1400	320
	100	1760	1400	320
	200	1940	1400	380
	300	2200	1400	470
63	50	1840	1600	340
	100	2050	1600	340
	200	2280	1600	430
	300	2272	1600	570
75	50	2180	1900	375
	100	2310	1900	400
	200	2440	1900	600
	300	2570	1900	675
90	50	2540	2200	360
	100	2700	2200	450
	200	2850	2200	630
	300	2850	2200	900
110	50	2610	2200	440
	100	2800	2200	550
	200	2992	2200	770
	300	3182	2200	990
125	50	2667	2200	500
	100	2883	2200	625

L.D.P.E PIPES

For Drip and Micro Irrigation

Application

ALWASAIL Low density polyethylene Pipes (LDPE) are mainly used in Drip & Micro Irrigation systems.

Design Features & Specification

ALWASAIL Low density polyethylene Pipes are manufactured from the Virgin High grade of Polyethylene resins.

LDPE- linear low density polythylene (Density = 0.930 g/cm³) Virgin basic polymers



Both the above materials contain choice of polymers and high quality carbon black to get life under every working and weather conditions.

Minimum 2% carbon black added for resistance to Ultra-Violet deterioration.

Economical. Longer Filed Life. Very Strict Quality control.

Available in a wide range of diameters, coil lengths and working pressures.

Manufactured as per AS 2698.1 - 1984 (Type 30)

Each material has its own application field, attractions and particular benefits depending on working and installation condition, equipment available and personal preference.

Chemical Resistance :

Polyethylene is renowned for its good resistance to chemical attacks, but the degree resistance to a specific chemical will depends on concentration, temperature, and working pressure, each of which will affect the life of any thermoplastic piping system.

Manufacturing Ranges of LDPE Pipes :

Nominal Sizes : 4mm - 32mm

Working Pressure : 3.0 Bar at 20 Deg. C. (68 Deg. F)

General Properties :

Nominal Density : 0.93 gm/cm³

Carbon Black content : 2.5+/-0.5%

Environment stress crack resistance F50 : >500 Hours

(10% IGEPA SOLVENT)

Thermal Properties :

Softening point (Load 1 kg) : 95 Deg. C
Co-efficient of Linear expansion : 2×10^{-4} / Deg. C

Mechanical Properties:

Tensile Strength : 115-140 Kg/cm²
Elongation at break : >500%
Modulus of leasticity : 1200 Kg/cm²

Manufacturing Standard :

All low density Polyethylene pipe supplied by AL-WASAIL Irrigation is made in accordance with Australian Standard AS2698.1 - 1984

Pipe Color :

The color of Al-Wasail LDPE pipe is black especially to provide high protection to degradation due to the UV radiation and so there is no limitation in external use of PE pipe as they are designed to withstand continuous solar radiation over a 50 years period at leasts.

AL-WASAIL LDPE PIPE MANUFACTURED ACCORDING TO AUSTRALIAN STANDARD AS 2698.1 - 1984 DRIP IRRIGATION TUBING (TYPE 30)

Material : PE-LD
Working pressure : 3 Bar at 20 Deg. C. (68 Deg. F)
Color : Black

Code No.	Nominal Dia De mm	Nominal Inside Dia mm	Wall Thickness mm	Working Pressure Bar	Nominal Weight kg / m	Standard Coil Length m
WS-P5-4-3	4	4	1.5	SDR 33 BLK	0.017	500
WS-P5-13-3	13	13	1.2	SDR 33 BLK	0.051	200
WS-P5-16-3	16	16	1.2	SDR 33 BLK	0.062	200
WS-P-19-3	19	19	1.3	SDR 33 BLK	0.080	200
WS-P-25-3	25	25	1.5	SDR 33 BLK	0.122	200
WS-P-32-3	32	32	2.0	SDR 33 BLK	0.200	200

Note : 1 Bar = 14.5 Psi = 0.1 Mpa = 0.1 N/mm²

Any other Diameter, Wall thickness and Coil length could be supplied on special request

LDPE Pipes Type 30 - Maximum working pressure according to water temperature

Normal Inside Diameter	Working Pressure - Bar (a)								
	De - mm	20 °C	25 °C	30 °C	35 °C	40 °C	45 °C	50 °C	55 °C
13	3	3	3	2	2.8	2.2	1.7	1.3	1
16	3	3	3	2.7	2.3	1.8	1.4	1.1	0.8
19	3	3	2.8	2.5	2.1	1.6	1.3	1	0.8
25	3	3	2.7	2.3	1.9	1.5	1.2	0.9	0.7



Techno Line - PC

PC Dripper for Varied Field Conditions

Developed for agricultural applications, the Techno Line - PC emitter is designed for high performance even in sloped applications and extra-long laterals.

Advantages and Benefits

Pressure Compensating

Self-regulation ensures the same flow rate over a range of pressures, making it the ideal choice for sloped conditions or extra-long laterals in agricultural applications.

High Performance

Longer pipe runs with <0.05 emitting exponent giving a constant flow over a large pressure range

Ease of Use

Not sensitive to varied field conditions, such as slopes and valleys simplifying system design.

Self-Cleaning and Clog-Resistant

A self-cleaning silicone diaphragm and large cross-section labyrinth ensure compensation is not interrupted by suspended solids in the water.

Elevated Dual Filter

The elevated filters draw from faster moving water that is closer to the center of the pipe. The higher velocity helps keep the filter surface clean while the elevated filter entrance inhibits solids from settling on it between flow cycles, regardless of dripper orientation in the pipe.

Built-in Quality and Durability

Constructed with 100% premium virgin polyethylene and additives for resistance to UV degradation and damage caused from commonly used chemicals and fertilizers.

16mm Diameter available in 1.6, 2, and 4 LPH

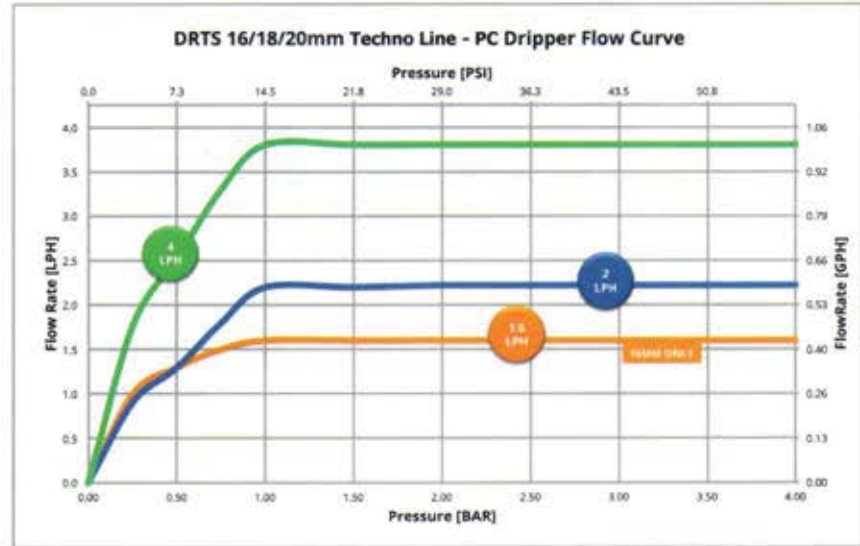
18mm Diameter available in 2, and 4 LPH

20mm Diameter available in 2, and 4 LPH

Techno Line - PC

PC Dripper for Varied Field Conditions

Developed for agricultural applications, the Techno Line - PC emitter is designed for high performance even in sloped applications and extra-long laterals.



*Technical data is to be used as a guide only. Actual results may vary depending on manufactured pipe characteristics.

ALWASAIL الوسائل
Alwasail Industrial Co. شركة الوسائل الصناعية

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ALWASAIL-HYDRO

PC/PCND Inline dripper

This modular cylindrical inline dripper is designed for the use in both Agricultural as well as Landscaping applications. The ND feature



Advantages and Benefits

Pressure Compensating

Ensures a consistent flow output over a range of pressures Making it the ideal choice for sloped conditions or extra-long laterals.

Non-Drain (ND)

The ND feature protects drip lines from sucking in small soil particles at system shut down. The water stops flowing through the drippers when the pressure drops to 0,1 bar, making this the ideal dripper for subsurface applications.

High Performance

The low emitting exponent allows longer lateral runs with a constant flow over a large pressure range.

Self-Cleaning and Clog-Resistant

The unique dripper design and size of the dripper channel make this dripper very clog resistant. With the additional self-cleaning mechanism, the dripper continuously flushes the inlet filter in the drip line ensuring it is clear for water passage.

Working Pressure Window

The Dripper is designed to operate and withstand pressures starting from 0.8-3.5 BAR.

Sealing pressure: 12mm-0.12, 16mm-0.1 BAR

Built-in Quality and Durability

Built to the stringent quality control measures and constructed with 100% premium virgin polyethylene and additives for resistance to UV degradation and damage caused from commonly used chemicals and fertilizers.

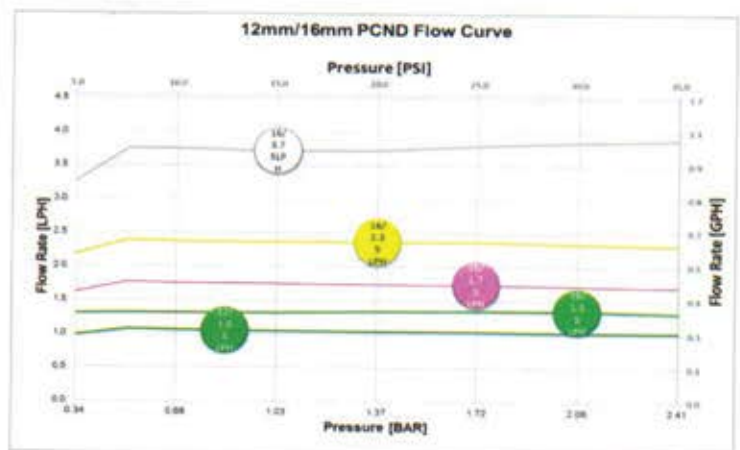
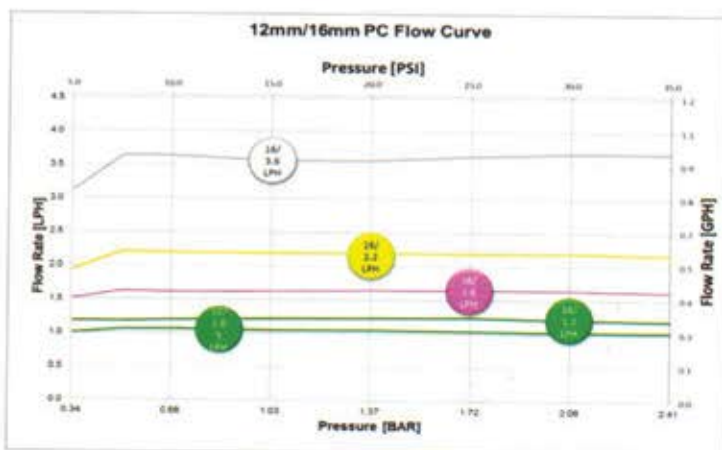
Available Flow Rates

12mm PC/PCND: 1.05 LPH

16mm PC: 1.2 LPH, 1.6LPH, 2.2 LPH 3.6LPH

16mm PCND: 1.35 LPH, 1.75 LPH, 2.35 LPH, 3.75 LPH

*Also available in 17mm and 20mm



*Technical data is to be used as a guide only. Actual results may vary depending on manufactured pipe characteristic

LOW DENSITY POLYETHYLENE PIPES

Micro Tube



Description	Code	Quantity Per Carton	Weight Kgs
Micro Tube 4mm	WS-P5-4		
Micro Tube 3mm	WS-P5-3		

LDPE Pipes Australian Standard



Description	Code	Quantity Per Carton	Weight Kgs
LDPE Pipes Australian Standards as (2699,1) Drip Irrigation Tubing (Type 30) Working Pressure 3 Bar At 20°C			
LDPE Pipes 13mm Wall thickness 1.2 mm	WS-P5-13-3		
LDPE Pipes 16mm Wall thickness 1.2 mm	WS-P5-16-3		
LDPE Pipes 19mm Wall thickness 1.3 mm	WS-P5-19-3		
LDPE Pipes 25mm Wall thickness 1.5 mm	WS-P5-25-3		

Qatrah Qatrah Inline Drip Tube



Description	Code	Quantity Per Carton	Weight Kgs
Qatra - Qatra Inline Dripper Tubing 16mm - 2 LPH	WS-PGR-16-2		
Qatra - Qatra Inline Dripper Tubing 16mm - 4 LPH	WS-PGR-16-4		
Qatra - Qatra Inline Dripper Tubing 16mm - 8 LPH	WS-PGR-16-8		
Qatra - Qatra Inline Dripper Tubing 20mm - 2 LPH	WS-PGR-20-2		
Qatra - Qatra Inline Dripper Tubing 20mm - 4 LPH	WS-PGR-20-4		
Qatra - Qatra Inline Dripper Tubing 20mm - 8 LPH	WS-PGR-20-8		
* Different Dripper Spacing Available on request.			

WS - PGR-16-2-30

- Please Specify Dripper Spacing (cm)
- Dripper Discharge 2 LPH
- Pipe Outside Diameter (mm)

PC DRIP LINE

Applications :

PC dripline is an advanced, pressure-compensating, linear low-density polyethylene drip line. The cylindrical flow-regulated inline emitters are self-contained units molded at specified intervals into the inner wall of the polyethylene tubing. Each has a self-cleaning mechanism at the water outlet chamber. Both the tubing and the drippers are manufactured from the finest quality resins to ensure uniform watering from each emitter, year after year.



Features :

- Flow regulated, self flushing inline emitters deliver equal flow at a wide range of operating pressures
- Flow uniformity regardless of operating pressure and variation along the line
- The dripper and the diaphragm are self-contained units that are molded to the interior wall of the tubing
- Turbulent flow through a large labyrinth water passage helps reduce clogging
- Made of three (3) individual sections including a cylindrical plastic housing with labyrinth water passage, a floating silicon diaphragm and a plastic receptacle
- Resistant to chemicals and fertilizers commonly used in landscaping
- Flexible tubing for easy installation
- The emitters performance is not affected by changes in water temperatures at 20° c .
- Resistant to clogging
- Large pressure compensation range up to 4.3 bar.
- Drip line diameter: 16, 18 and 20 mm.
- Dripper flow rate: 2 , 4 , 8l/hr .



Materials :

- Liner low-density polyethylene

PC DRIP LINE

Specifications:

Model	Inside Diameter (mm)	Wall Thickness (mm)	Min. Working Pressure (bar)*	Max. Working Pressure (bar)	KD
ADI16	13.8	0.9	0.8	3.5	1.12
		1.15	0.8	4.3	0.95
ADI18	15.8	1.2	0.8	4.3	0.95
ADI20	17.4	1.0	0.8	3.5	0.85
		1.25	0.8	4.3	0.6

* Min working pressure of 0.8 bar is recommended for efficient dripline flushing.

ADI 16mm. Max. lateral length (I.D 13.8 mm, W.T 0.9 mm, Inlet pressure 2.5 bar):

Nom. Flow Rate (l/h)	Spacing Between Drippers (m)						
	0.20	0.30	0.40	0.50	0.60	0.75	1.00
1.6	86	122	156	188	218	260	324
2.2	72	103	131	157	182	216	269
3.5	51	73	94	113	131	156	195

Codes	Description
WSI PC E XX xx - xx	PC Pressure compensating

XX Ø O. D. (mm)
xx Dropper (l/h)
xx Emitter spacing (cm)



WE COUNT EVERY DROP.



BARBED FITTINGS

TECHNICAL

GENERAL :

AlWasail fittings are manufactured from tough engineering material and are designed to withstand UV-radiation, corrosion, severe environmental condition, pressure and temperature mechanical and hydraulic loads etc.,

Our fittings are supplied in a wide range of sized and is suitable for use with a wide variety of Polyethylene and other pipes with different wall thicknesses. We are fully equipped to offer.

"TOTAL SOLUTIONS FOR YOUR PIPING SYSTEMS REQUIREMENTS." Reduced installation costs through troublefree quick assembly and their suitability for reuse are outstanding features. Our fittings have a wide application field: Irrigation, Water Industries and telecommunication, minings, etc.,

One of the major benefits of Al-Wasail polyethylene pipes are the ability to use one of the following methods of joint. This gives a great deal of flexibility is allowing for varying installation conditions and the skill and equipments of the installation.

BARBED FITTINGS :

Design Features & Specifications:

AlWasail barbed fittings are specially produced in accordance to international standards and specifications to fit the Al-Wasail products. Barbed fittings are available for PE pipe from 4mm to 32mm dia.

AlWasail micro irrigation fittings are designed to confirm with pipe manufactured to **Australian Standard AS2698.1 & European standard.**

The **Australian Standard AS2698.3** (Currently being formulated) refers to fittings for use with polyethylene pipes.

Produced from a high quality virgin Polypropylene Injection material. It has greater rigidity and heat resistance and low moisture absorbency. We are able to produce all barbed fitting with different standard, thread & material upon customer request.

Nominal Working pressure	: 3 bar
Threaded connection	: BSP
Packing	: Standard carton box size

CODE	TYPE	L CM	B CM	H CM	VOLUME M ³
S	Small	40	30	30	0.036
M	Medium	60	40	25	0.06
L	Large	60	50	40	0.12

SANITARY LAWS :

Materials are complies with recommendations and statutory regulations in the USA and most European Countries regarding materials intended to come in contact with food stuff.

Certifications :

AlWasail Barbed fittings have been approved by TUV CERT ISO9002 Certification Body of RWTUV GMPH

BARBED FITTINGS - AUSTRALIAN STANDARD

Nuts and Tails

بدية كيس سنة داخلي



Description	Nom. Dia Inch x mm	Code	Quantity Per Carton	Weight Kgs
BSP Nut with Washer and Tail Inch x mm	3/4" x 13	WS - NT 1234	800	11.35
	1" x 13	WS - NT 1210	500	10.20
	3/4" x 16	WS - NT 5834	800	9.75
	1" x 16	WS - NT 5810	500	11.00
	3/4" x 19	WS - NT 3434	700	10.50
	1" x 19	WS - NT 3410	500	11.50

End plugs

سدة كيس



Description	Nom. Dia mm	Code	Quantity Per Carton	Weight Kgs
Line (mm)	13	WS - EP12	3600	8.00
	16	WS - EP58	2400	7.90
	19	WS - EP34	1600	7.60
	22	WS - EP22	1500	5.50
	25	WS - EP10	1000	6.60
	32	WS - EP114	850	5.40

Male Adaptors

بدية كيس سنة خارجي



Description	Nom. Dia mm x Inch	Code	Quantity Per Carton	Weight Kgs
Tail to BSP male mm x Inch	13 x 1/2"	WS - D 1212	1300	5.88
	13 x 3/4"	WS - D 1234	900	8.40
	13 x 1"	WS - D 1210	500	4.85
	16 x 1/2"	WS - D 5812	1100	7.60
	16 x 3/4"	WS - D 5834	800	8.50
	16 x 1"	WS - D 5810	500	7.50
	19 x 1/2"	WS - D 3412	900	6.70
	19 x 3/4"	WS - D 3434	700	7.20
	19 x 1"	WS - D 3410	500	9.33
	22 x 1/2"	WS - D 2212	800	8.00
	22 x 3/4"	WS - D 2234	700	7.40
	22 x 1"	WS - D 2210	500	7.15
	25 x 3/4"	WS - D 1034	600	9.60
	25 x 1"	WS - D 1010	400	6.45
	32 x 3/4"	WS - D 11434	500	8.00
	32 x 1"	WS - D 11410	400	7.34

Double Eye End Plugs

سدة حلقة



Description	Nom. Dia mm	Code	Quantity Per Carton	Weight Kgs
Line (mm)	13	WS - ED12	2300	8.95
	16	WS - ED58	1300	7.20
	22	WS - ED22	1300	6.30
	25	WS - ED 10	800	9.37

Joiners

وصلة كيس



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Line mm x mm	13 x 13	WS - HJ12	2200	6.48
	16 x 16	WS - HJ58	1200	7.00
	19 x 19	WS - HJ34	1000	6.60
	22 x 22	WS - HJ22	900	9.00
	25 x 25	WS - HJ10	600	8.00
	32 x 32	WS - HJ114	400	5.20

Tees

قسام كيس



Description	Nom. Dia mm x mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Branch x Line mm x mm x mm	13 x 13 x 13	WS - T12	1000	6.10
	16 x 16 x 16	WS - T58	550	5.00
	19 x 19 x 19	WS - T34	450	4.50
	22 x 22 x 22	WS - T22	300	4.05
	25 x 25 x 25	WS - T10	200	3.78
	32 x 32 x 32	WS - T114	200	3.50

Reducing Joiners

وصلة نقصا كيس



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Line mm x mm	16 X 13	WS - RJ5812	1500	7.50
	19 X 13	WS - RJ3412	1250	7.26
	19 X 16	WS - RJ3458	1000	6.94
	22 X 13	WS - RJ2212	1000	6.18
	22 X 16	WS - RJ2258	950	6.60
	22 X 19	WS - RJ2234	900	5.40
	25 X 13	WS - RJ1012	800	6.90
	25 X 19	WS - RJ1034	600	5.62
	32 X 19	WS - RJ11434	500	7.00
	32 X 22	WS - RJ11422	400	5.30

Reducing Tees

قسام نقصا كيس



Description	Nom. Dia mm x mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Branch x Line mm x mm x mm	16 x 13 x 16	WS - RT5812	600	6.30
	19 x 13 x 19	WS - RT3412	500	5.90
	22 x 13 x 22	WS - RT2212	350	5.20
	22 x 16 x 22	WS - RT2258	300	5.05
	22 x 19 x 22	WS - RT2234	300	6.00
	25 x 13 x 25	WS - RT1012	300	5.00
	25 x 16 x 25	WS - RT1058	275	4.78
	25 x 19 x 25	WS - RT1034	250	3.90
	32 x 13 x 32	WS - RT11412	200	4.50
	32 x 16 x 32	WS - RT11458	200	4.70
	32 x 19 x 32	WS - RT11434	200	5.10
	32 x 22 x 32	WS - RT11422	200	5.70

BARBED FITTINGS

BARBED FITTINGS - AUSTRALIAN STANDARD

Male Threaded Tees

قسم كبس سن خارجي



Description	Nom. Dia mm x inch x mm	Code	Quantity Per Carton	Weight Kgs
Line x BSP Male Branch x line mm x inch x mm	13 x 1/2" x 13	WS-TMT-12G12M	800	6.70
	13 x 3/4" x 13	WS-TMT-12G34M	600	6.40
	16 x 1/2" x 16	WS-TMT-58G12M	500	6.40
	16 x 3/4" x 16	WS-TMT-58G34M	450	5.80
	19 x 1/2" x 19	WS-TMT-34G12M	450	6.50
	19 x 3/4" x 19	WS-TMT-34G34M	400	7.01
	22 x 1/2" x 22	WS-TMT-22G12M	300	4.98
	22 x 3/4" x 22	WS-TMT-22G34M	275	5.70
	22 x 1" x 22	WS-TMT-22G10M	250	5.20
	25 x 1/2" x 25	WS-TMT-10G12M	225	5.01
	25 x 3/4" x 25	WS-TMT-10G34M	225	4.80
	25 x 1" x 25	WS-TMT-10G10M	200	5.01
	32 x 1/2" x 32	WS-TMT-114G12M	200	4.80
	32 x 3/4" x 32	WS-TMT-114G34M	200	4.70
	32 x 1" x 32	WS-TMT-114G10M	200	5.20

Male Threaded Elbows

كوع كبس سن خارجي



Description	Nom. Dia mm x inch	Code	Quantity Per Carton	Weight Kgs
Line x BSP Male Elbows mm x inch	13 x 1/2"	WS-EMT-12G12M	1100	6.70
	13 x 3/4"	WS-EMT-12G34M	800	6.80
	13 x 1"	WS-EMT-12G10M	600	6.00
	16 x 1/2"	WS-EMT-58G12M	900	6.95
	16 x 3/4"	WS-EMT-58G34M	750	7.30
	16 x 1"	WS-EMT-58G10M	500	6.80
	19 x 1/2"	WS-EMT-34G12M	700	6.50
	19 x 3/4"	WS-EMT-34G34M	600	6.75
	19 x 1"	WS-EMT-34G10M	450	6.00
	22 x 1/2"	WS-EMT-22G12M	600	5.85
	22 x 3/4"	WS-EMT-22G34M	500	6.20
	22 x 1"	WS-EMT-22G10M	450	6.40
	25 x 1/2"	WS-EMT-10G12M	450	6.80
	25 x 3/4"	WS-EMT-10G34M	400	9.90
	25 x 1"	WS-EMT-10G10M	350	8.00
	32 x 1/2"	WS-EMT-114G12M	350	7.50
	32 x 3/4"	WS-EMT-114G34M	300	7.80
	32 x 1"	WS-EMT-114G10M	300	5.10

Female Threaded Tees

قسم كبس سن داخلي



Description	Nom. Dia mm x inch x mm	Code	Quantity Per Carton	Weight Kgs
Line x BSP Female Branch x line mm x inch x mm	13 x 1/2" x 13	WS-TFT-12G12F	500	9.10
	16 x 1/2" x 16	WS-TFT-58G12F	400	8.50
	19 x 1/2" x 19	WS-TFT-34G12F	300	8.00
	19 x 3/4" x 19	WS-TFT-34G34F	300	7.30
	25 x 1/2" x 25	WS-TFT-10G12F	250	6.50
	25 x 3/4" x 25	WS-TFT-10G34F	250	6.40
	32 x 3/4" x 32	WS-TFT-114G34F	200	5.80

Take Offs

جرمت



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
Grommet Inlet x Take off mm x mm	8 x 13	WS - TO5612	3400	7.30
	8 x 16	WS - TO5658	3000	8.00
	13 x 13	WS - TO1212	2800	7.20
	16 x 16	WS - TO5858	2500	8.10
	19 x 19	WS - TO3434	2200	7.90

Elbows

كوع كبس



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Line (mm x mm)	13 x 13	WS - E12	1500	6.50
	16 x 16	WS - E58	800	5.60
	19 x 19	WS - E34	700	6.20
	22 x 22	WS - E22	500	5.50
	25 x 25	WS - E10	400	5.30
	32 x 32	WS - E114	300	5.10

Take Offs with Rubber Grommets

جرومت مع ربر



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
Take offs x Grommet (mm x mm)	8 x 13	WS - TO5612 + GR56	2400	9.70
	8 x 16	WS - TO5658 + GR56	2000	8.90

Female Threaded Elbows

كوع كبس سن داخلي



Description	Nom. Dia mm x inch	Code	Quantity Per Carton	Weight Kgs
Line x BSP Female Elbows mm x inch	13 x 1/2"	WS-EFT-12G12F	600	6.00
	16 x 1/2"	WS-EFT-58G12F	500	5.50
	19 x 1/2"	WS-EFT-34G12F	400	5.00
	19 x 3/4"	WS-EFT-34G34F	350	4.50
	25 x 1/2"	WS-EFT-10G12F	300	4.00
	25 x 3/4"	WS-EFT-10G34F	250	4.20
	32 x 3/4"	WS-EFT-114G34F	225	4.10
	32 x 1"	WS-EFT-114G10F	200	4.70

RUBBER GROMMETS - AUSTRALIAN STANDARD

Double Flanged Rubber Grommets

ربر جرومٹ



Description	Internal dia of grommets mm	To suit take of code	Code	Quantity Per Carton	Weight Kgs
Grommet Internal Diameter (mm)	8	TO5612, TO5658	SRP - GR56	2000	
	16	TO5858	SRP - GR16	1500	
	20	WS-58HJ (Joiner)	SRP - GR20	1000	

Micro fittings

وصلة 4 ملم سنة



Description	To Suit Pipe OD mm	Code	Quantity Per Carton	Weight Kgs
Threaded Adaptor mm x mm	4 X 4	WS - JAT	30000	16.55

Double Flanged Rubber Grommets Cone Type



Description	Internal dia of grommets mm	To suit take of code	Code	Quantity Per Carton	Weight Kgs
Grommet Internal Diameter (mm)	13	TO1212	WS - GR13	2000	

Joiner Barbed

وصلة 4 ملم كيس



Description	To Suit Pipe OD mm	Code	Quantity Per Carton	Weight Kgs
(mm x mm)	4 X 4	WS - JAB	2300	18.70

Top Hat Rubber Grommets

ربر ٹوپ ہٹ



Description	Internal dia of grommets mm	To suit take of code	Code	Quantity Per Carton	Weight Kgs
Grommet Internal Diameter (mm)	13	TO1212	SRP - GR12TH	2000	
	16	TO5858	SRP - GR58TH	1500	
	19	TO3434	SRP - GR34TH	1000	

Goof Plug

سدة 4 ملم كيس



Description	To Suit Pipe OD mm	Code	Quantity Per Carton	Weight Kgs
(mm)	4	WS - EP4	75000	15.60

Ratchet Clips For Polyethylene Pipe

کلیبس قطع توصیل لیات 4 ملم



Description	To Suit Pipe OD mm	Code	Quantity Per Carton	Weight Kgs
	16	WS - RC - 15	4800	11.10
	18 - 19	WS - RC - 19	4800	10.80
	22 - 24	WS - RC - 23	3200	9.80
		WS - RC - 25		
		WS - RC - 32		

TRIBLE BARBED FITTINGS - EUROPEAN STANDARD

Male Adaptors

بدایة کبس سنة خارجي



Description	Nom. Dia mm x inch	Code	Quantity Per Carton	Weight Kgs
Tail to BSP Male mm x Inch	16 x 1/2"	WS - TB - D1212	1400	8.00
	16 x 3/4"	WS - TB - D1234	1000	8.00
	16 x 1	WS - TB - D1210	500	7.00
	20 x 1/2"	WS - TB - D5812	1100	6.90
	20 x 3/4"	WS - TB - D5834	800	7.10
	20 x 1	WS - TB - D5810	450	6.50
	25 x 3/4"	WS - TB - D1034	600	6.10
	25 x 1	WS - TB - D1010	400	5.02
	32 x 3/4"	WS - TB - D11434	450	5.00
	32 x 1	WS - TB - D11410	400	4.90

Joiners

وصلة کبس



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Line (mm x mm)	16 x 16	WS - TB - 12HJ	1800	6.10
	20 x 20	WS - TB - 58HJ	1100	7.00
	25 x 25	WS - TB - 10HJ	700	6.70
	32 x 32	WS - TB - 114HJ	400	5.50

Reducing Joiners

وصلة نقاص کبس



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Line (mm x mm)	20 x 16	WS - TB - RJ5812	1400	7.00
	25 x 16	WS - TB - RJ1012	700	6.90
	25 x 20	WS - TB - RJ1058	600	5.50
	32 x 20	WS - TB - RJ11458	400	5.20
	32 x 25	WS - TB - RJ11410	350	4.90

End Plugs

سد کبس



Description	Nom. Dia mm	Code	Quantity Per Carton	Weight Kgs
Line (mm)	16	WS - TB - EP12	3000	7.00
	20	WS - TB - EP58	2000	6.50
	25	WS - TB - EP10	800	6.20
	32	WS - TB - EP114	700	5.80

Reducing Tees

مسكه کبس



Description	Nom. Dia mm x mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Branch X Line mm x mm x mm	20 x 16 x 20	WS-TB-RT5812	500	6.00
	25 x 16 x 25	WS-TB-RT1012	250	5.80
	25 x 20 x 25	WS-TB-RT1058	250	4.90
	32 x 16 x 32	WS-TB-RT11412	200	4.80
	32 x 20 x 32	WS-TB-RT11458	200	4.30
	32 x 25 x 32	WS-TB-RT11410	175	4.90

Take Offs

جرومت



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
Grommet Inlet x Take Off mm x mm	16 x 16	WS - TB - TO1212	2400	8.80
	16 x 20	WS - TB - TO1258	2200	7.75

Tees. Equal

قسام



Description	Nom. Dia mm x mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Branch X Line mm x mm x mm	16 x 16 x 16	WS - TB - T12	1000	6.60
	20 x 20 x 20	WS - TB - T58	500	6.70
	25 x 25 x 25	WS - TB - T10	200	6.00
	32 x 32 x 32	WS - TB - T114	175	5.60

Male Threaded Tees

قسام کبس بسنة خارجي



Description	Nom. Dia mm x inch x mm	Code	Quantity Per Carton	Weight Kgs
Line x BSP Male Branch X Line mm x inch x mm	16 x 1/2" x 16	WS-TB-TMT-T12G12M	700	6.00
	16 x 3/4" x 16	WS-TB-TMT-T12G34M	500	6.10
	20 x 1/2" x 22	WS-TB-TMT-T58G12M	400	5.30
	20 x 3/4" x 22	WS-TB-TMT-T58G34M	350	5.50
	25 x 1/2" x 25	WS-TB-TMT-T10G12M	200	5.10
	25 x 3/4" x 25	WS-TB-TMT-T10G34M	200	4.90
	25 x 1" x 25	WS-TB-TMT-T10G10M	175	4.20
	32x 1/2" x 32	WS-TB-TMT-T114G12M	175	4.30
	32 x 3/4" x 32	WS-TB-TMT-T114G34M	175	4.25
	32 x 1" x 32	WS-TB-TMT-T114G10M	175	4.80

Elbows

کوع کبس



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Line (mm x mm)	16 x 16	WS - TB - E12	1500	6.72
	20 x 20	WS - TB - E58	800	6.00
	25 x 25	WS - TB - E10	350	5.85
	32 x 32	WS - TB - E114	250	4.70

Male Threaded Elbows

کوع کبس سنة خارجي



Description	Nom. Dia mm x inch	Code	Quantity Per Carton	Weight Kgs
Line x BSP Male mm x Inch	16 x 1/2"	WS-TB-EMT-T12G12M	1000	7.00
	16 x 3/4"	WS-TB-EMT-T12G34M	700	6.75
	16 x 1"		600	6.10
	20 x 1/2"	WS-TB-EMT-T58G12M	800	5.90
	20 x 3/4"	WS-TB-EMT-T58G34M	650	6.00
	20 x 1"		550	5.20
	25 x 1/2"	WS-TB-EMT-T10G12M	400	6.25
	25 x 3/4"	WS-TB-EMT-T10G34M	350	4.90
	25 x 1"	WS-TB-EMT-T10G10M	300	4.75
	32 x 1/2"	WS-TB-EMT-T114G12M	250	4.20
	32 x 3/4"	WS-TB-EMT-T114G34M	250	4.35
	32 x 1"	WS-TB-EMT-T114G10M	225	4.00

Take Offs with Rubber Grommets

جرومت مع الربر



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
Take Off x Grommet mm x mm	16 x 16	WS - TB - TO1212+GR13	2200	14.00
	16 x 16	WS - TB - TO1258+GR13	2000	15.00

RUBBER GROMMETS - EUROPEAN STANDARD

Double Flanged Rubber Grommets

ربر جرومٹ



Description	Internal dia of grommets mm	To suit take of code	Code	Quantity Per Carton	Weight Kgs
Grommet Internal Diameter (mm)	8	TO5612, TO5658	WS - GR56	2000	
	16	TO5858	WS - GR16	1500	
	20	WS-58HJ (Joiner)	WS - GR20	1000	

Top Hat Rubber Grommets Cone Type

ربر توپ هٹ



Description	Internal dia of grommets mm	To suit take of code	Code	Quantity Per Carton	Weight Kgs
Grommet Internal Diameter (mm)	13	TO1212	WS - GR12TH	1000	
	16	TO5858	WS - GR58TH	900	
	19	TO3434	WS - GR34TH	800	

Double Flanged Rubber Grommets Cone Type



Description	Internal dia of grommets mm	To suit take of code	Code	Quantity Per Carton	Weight Kgs
Grommet Internal Diameter (mm)	3	TO1212	WS - GR13		

U.S. COMPRESSION FITTINGS

Compression Size Selection Chart

Nominal Tubing Size

Fitting Series Guide	Color of Ends	O.D. Inches	I.D. Inches	O.D. Millimeters	I.D. Millimeters
250	Orange	.250	.170	6.4	4.3
350	Black	.350	.250	8.9	6.4
400	Red	.455	.375	11.6	9.5
600	Green	.620	.520	15.7	13.2
700	Black	.685 - .700	.590	17.4 - 17.8	15.0
710	Blue	.700 - .715	.600	17.8 - 18.2	15.2
790	Green	.790	.680	20.1	17.3
800	Black	.830	.720	21.1	18.3
900	Grey	.927	.817	23.5	20.8
1000	Black	1.174	1.050	29.8	26.7

BARBED FITTINGS

U.S. COMPRESSION INSERT FITTINGS - U.S. STANDARD

U.S. Compression Male Adaptors



Description	Nom. Dia Tail * Mpt mm x inch	Code	Quantity Per Carton	Weight Kgs
Tail to Mpt mm x inch	(600) 16mm OD x 1/2"	WS - CI - D1212	800	8.30
	(600) 16mm OD x 3/4"	WS - CI - D1234	600	7.80
	(790) 20mm OD x 1/2"	WS - CI - D3412	600	8.20
	(790) 20mm OD x 3/4"	WS - CI - D3434	500	7.20

U.S. Compression Couplings



Description	Nom. Dia Tail * Mpt mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Line mm x mm	(600) 16mm ODx16mm OD	WS - CI - HJ - 12	450	8.00
	(790) 20mm ODx20mm OD	WS - CI - HJ - 34	350	7.70

U.S. Compression Insert



Description	Nom. Dia Tail * Mpt mm x inch	Code	Quantity Per Carton	Weight Kgs
Reducer Couplings Line x Line (mm x mm)	20mm OD x 16mm OD	WS - CI - RJ3412	350	6.30
	(790) (600)			

U.S. Compression Insert Elbow



Description	Nom. Dia Tail * Mpt mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Line mm x mm	(600) 16mm ODx16mm OD	WS - CI - E12	400	8.80
	(790) 20mm ODx20mm OD	WS - CI - E34	300	7.00

U.S. Compression Insert Tees



Description	Nom. Dia Tail * Mpt mm x inch	Code	Quantity Per Carton	Weight Kgs
Line x Branch x Line mm x mm x mm	16mm x 16mm x 16mm OD OD OD (600)	WS - CI - T12	250	6.00
	16mm x 16mm x 16mm OD OD OD (600)	WS - CI - T12	200	4.80

TECHNOLINE BARBED FITTINGS

Male Adaptors



Description	Nom. Dia mm x inch	Code	Quantity Per Carton	Weight Kgs
Tail to BSP male (mm x inch)	17 x 1/2"	WS - TL - D1712	900	8.10
	17 x 3/4"	WS - TL - D1734	700	7.80

Joiners



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Line (mm x mm)	17 x 17	WS - TL - 17HJ	1000	6.90

Tees



Description	Nom. Dia mm x mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Line x Line mm x mm x mm	17 x 17 x 17	WS - TL - T17	450	5.20

Male Threaded Tees



Description	Nom. Dia mm x inch x mm	Code	Quantity Per Carton	Weight Kgs
Line x BSP male x Line mm x inch x mm	17 x 1/2" x 17	WS - TL - T17G12M	400	6.20
	17 x 3/4" x 17	WS - TL - T17G34M	300	5.80

Elbows



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Line (mm x mm)	17 x 17	WS - TL - E17	700	6.50

Male Threaded Elbows



Description	Nom. Dia mm x inch	Code	Quantity Per Carton	Weight Kgs
Line x BSP Male (mm x inch)	17 x 1/2"	WS - TL - E17G12M	800	7.30
	17 x 3/4"	WS - TL - E17G34M	600	6.35
	17 x 1"	WS - TL - E17G10M	500	5.20

Drain Valve Female Threaded



Description	Nom. Dia inch	Code	Quantity Per Carton	Weight Kgs
Inch	3/4"	WS - TL - DV34	1200	9.10



WE COUNT EVERY DROP.



COMPRESSION FITTINGS

TECHNICAL

GENERAL :

AlWasail fittings are manufactured from tough engineering material and are designed to withstand UV-radiation, corrosion, severe environmental condition, pressure and temperature mechanical and hydraulic loads etc.,

Our fittings are supplied in a wide range of sized and is suitable for use with a wide variety of Polyethylene and other pipes with different wall thicknesses.

We are fully equipped to offer

"TOTAL SOLUTIONS FOR YOUR PIPING SYSTEMS REQUIREMENTS." Reduced installation costs through troublefree quick assembly and their suitability for reuse are outstanding features. Our fittings have a wide application field: Irrigation, Water Industries and telecommunication, minings, etc.,

One of the major benefits of AlWasail polyethylene pipes are the ability to use one of the following methods of joint. This gives a great deal of flexibility is allowing for varying installation conditions and the skill and equipments of the installers.

COMPRESSION FITTINGS :

Design Features :

Polypropylene compression fittings provide the simplest and most economic solution that ensure fast and safe connection and their suitability for reuse are its outstanding features.

All Compression fittings are available for PE pipe from 16mm to 125mm outside diameter. They are easy to use and donot required specially skilled operatives to install.

AlWasail compression fittings are designed to confirm with pipe manufactured to UNI, ISO 161/1, ISO4437, DIN 8074, DIN 19537, AS and SAS Draft No. 5208 and others.

Compression fittings consists of:

- (i) Body
- (ii) Lock Nut
- (iii) Grip/Split Ring
- (iv) Thrust ring / Bushing
- (v) O' Rings

Material used

(i) Body and Lock Nut :

Body and lock nut are made of polypropylene. It has greater rigidity and heat resistance and low moisture absorbency.

(ii) Grip / Splits rings :

Grip rings are made of polyacetal which is a strong, hard, highly crystalline thermoplastic and is known as engineering plastic. Polyacetal has high melting point, excellent creep resistance and is highly chemical resistant. The axial floating Grip ring compensates pull stress or thermal expansion.

TECHNICAL

(iii) Thrust ring / Bushing

Bushings are made of High density polyethylene (HDPE 80064). The characteristics of PE are chemical resistance to solvents, acids and alkalines, toughness and flexibility.

(iv) 'O' Rings :

'O' Rings are made of styrene butadiene-rubber (SBR). The independent 'O' Ring can be removed from the coupling-body and a push ring compresses it, adjusting the seal compression on the pipe. So it's also possible to assemble pipes with elliptical features and small mistakes in respect to the nominal dimension.

Compression Flanged Adaptor:

In addition to Compression fittings components, flanged adaptors have a metal ring 8mm thick, covered by a layer of Chromium pr Polypropylene backing Ring.

Specifications :

Nominal working pressure	:	PN 16 - PN 10 for items marked with (□)
	:	(Maximum pressure at 20Deg C temperature)
Threaded connection	:	BSP
Maximum temperature	:	Polypropylene : 100 c
	:	Polyacetale : 80 c
Dimensions and features	:	According to DIN-ISO-UNI-SAS-AS and others
Effect on water quality	:	All materials are suitable for use in contact with drinking water
Spare Parts	:	All parts are available on customer request
Packing	:	Standard carton box size

CODE	TYPE	L CM	B CM	H CM	VOLUME M ³
S	Small	40	30	30	0.036
M	Medium	60	40	25	0.06
L	Large	60	50	40	0.12

Characteristics :

Max. Operating Pressure		0-30	0-50	60	70	80
Fitted with water hammering dampers	kg/cm2	16	10	8	6	4
Under any continuous operating condition	kg/cm2	10	6	5	3.5	2.5
Stress allowed at 20c.						
For a 50 years working period						
		sigma σ = 7 kg/cm2				

TECHNICAL

Fields of Applications :

PP Compression fittings are widely used for polyethylene branch lines in :

- * Potable water distribution
- * Industrial equipments for acids basis fertilizing, chemical, water treatment plants, Sea water applications, etc., Pools, anti-fire mains, protection of cable system & irrigation systems etc.,

Food regulation :

Materials are complies with recommendations and statutory regulations in the USA and most european countries regarding materials intended to come in contact with food stuff.

Instructions for Mounting the compression fittings :

For pipes with outsides diameter 16mm - 75mm :

1. Clean of the pipe ends of loose dirt and embedded grit.
2. Bevel the pipe ends with the chamfering tool (a knife of file may also be used)
3. For easier insertion wet the end of the pipe with water or lubricating paste.
4. Unscrew the lock nut almost to the end of the thread, but do not remove completely.
5. Mark the full insertion depth of the fitting on the pipe.
6. Push the pipe into the fittings.
7. At the first stop, the seal has been reached.
8. Push the pipe past the seal until full insertion depth is reached.
9. Screw on the nut tightly.

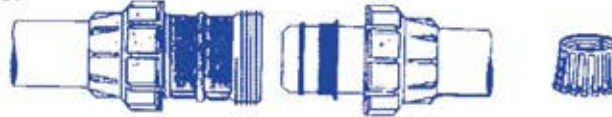
For pipes with outsides diameter 90mm - 125mm :

1. Clean of the pipe ends of loose dirt and embedded grit.
2. Bevel the pipe ends with the chamfering tool (a knife of file may also be used)
3. Dismantle the fittings and leaving the grip ring to one side, thread the nut, the thrust ring and the 'O'-ring onto the pipe.
4. Push the pipe into the fitting until it reaches the internal edge stopper. The advance the 'O'-ring and the thrust ring up to the body of the fitting.
5. Tighten the nut, using a suitable wrench, until it reaches the end of the thread. The 'O'-ring and thrust rings now correctly positioned.
6. Completely unscrew the nut from the body of the fitting. Take care not to disturb the pipe, 'O'-ring or thrust ring from their position.
7. Open the grip ring and place it on the pipe between the nut and thrust ring.
8. Offer up the nut, the fitting is now ready for final tightening.
9. Tighten the nut using Al-Wasail wrench for compression fittings.

TECHNICAL

Assembly Instructions :

1. Clean off the pipe ends of loose dirt and embedded grit.
2. Bevel the pipe ends with the chamfering tool (a knife or file may also be used)
3. Dismantle the fittings and leaving the grip ring to one side, thread the nut, the insert and the 'O'-ring on to the pipe.



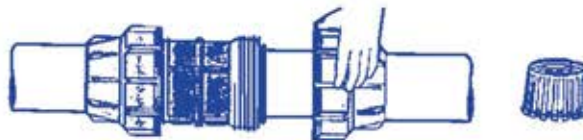
4. Push the pipe into the fitting until it reaches the internal edge stopper. Then advance the 'O'-ring and the insert up to the body of the fitting.



5. Tighten the nut, using a suitable wrench, until it reaches the end of the thread. The 'O'-ring and insert rings are now correctly positioned.



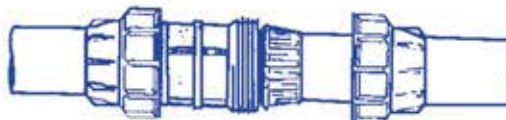
6. Completely unscrew the nut from the body of the fitting. Take care not to disturb the pipe, 'O'-ring or insert from their position.



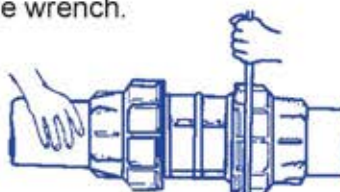
7. Open the grip ring and place it on the pipe between the nut and the insert.



8. Offer up the nut, the fitting is now ready for final tightening.



9. Tighten the nut using a suitable wrench.



10. Repeat for the other pipe.



Watch Comp.F.H.installation
شاهد تركيب قطع الربط

COMPRESSION FITTINGS

COMPRESSION FITTINGS

Cross Tees

قسام صليب ريب



Description	Nom. Dia mm x mm x mm x mm	Code	Quantity Per Carton	Weight Kgs
16 bar	16 x 16 x 16 x 16	WS - 70 - 16	100	17.00
	20 x 20 x 20 x 20	WS - 70 - 20	100	18.70
	25 x 25 x 25 x 25	WS - 70 - 25	75	14.00
	32 x 32 x 32 x 32	WS - 70 - 32	40	15.00
	40 x 40 x 40 x 40	WS - 70 - 40	15	13.25
	50 x 50 x 50 x 50	WS - 70 - 50	10	14.20
	63 x 63 x 63 x 63	WS - 70 - 63	8	10.20
	75 x 75 x 75 x 75	WS - 70 - 75	5	10.00
	90 x 90 x 90 x 90	WS - 70 - 90	4	20.00
	110 x 110 x 110 x 110	WS - 70 - 110	4	27.00
mm x mm x mm x mm				
10 bar				

Female Threaded Tees

قسام سن داخلي



Description	Nom. Dia mm x inch x mm	Code	Quantity Per Carton	Weight Kgs
16 bar	16 x 1/2" x 16	WS - 85 - 16 x 1/2	175	10.00
	16 x 3/4" x 16	WS - 85 - 16 x 3/4	175	10.30
	20 x 1/2" x 20	WS - 85 - 20 x 1/2	135	9.10
	20 x 3/4" x 20	WS - 85 - 20 x 3/4	135	10.00
	25 x 1/2" x 25	WS - 85 - 25 x 1/2	125	18.00
	25 x 3/4" x 25	WS - 85 - 25 x 3/4	125	17.40
	25 x 1" x 25	WS - 85 - 25 x 1	120	16.45
	32 x 1/2" x 32	WS - 85 - 32 x 1/2	70	17.50
	32 x 3/4" x 32	WS - 85 - 32 x 3/4	70	16.50
	32 x 1" x 32	WS - 85 - 32 x 1	70	16.15
mm x Inch (BSP Female) x mm				
16 bar	40 x 3/4" x 40	WS - 85 - 40 x 3/4	30	13.80
	40 x 1" x 40	WS - 85 - 40 x 1	30	13.50
	40 x 1 1/4" x 40	WS - 85 - 40 x 1 1/4	30	14.00
	40 x 1 1/2" x 40	WS - 85 - 40 x 1 1/2	30	13.80
	50 x 1 1/4" x 50	WS - 85 - 50 x 1 1/4	25	13.20
	50 x 1 1/2" x 50	WS - 85 - 50 x 1 1/2	25	13.50
	50 x 2" x 50	WS - 85 - 50 x 2	20	12.70
	63 x 1 1/2" x 63	WS - 85 - 63 x 1 1/2	12	11.30
	63 x 2" x 63	WS - 85 - 63 x 2	12	11.85
	75 x 2" x 75	WS - 85 - 75 x 2	9	12.00
10 bar				
10 bar	75 x 2 1/2" x 75	WS - 85 - 75 x 2 1/2	9	13.00
	90 x 3" x 90	WS - 85 - 90 x 3	9	23.25
110 x 3" x 110				
110 x 4" x 110				

Reducing Tees

قسام نقاص



Description	Nom. Dia mm x mm x mm	Code	Quantity Per Carton	Weight Kgs
16 bar	20 x 16 x 20	WS - 75 - 20 x 16	135	16.56
	25 x 20 x 25	WS - 75 - 25 x 20	100	15.70
	32 x 20 x 32	WS - 75 - 32 x 20	60	14.00
	32 x 25 x 32	WS - 75 - 32 x 25	50	13.65
	40 x 25 x 40	WS - 75 - 40 x 25	30	14.10
	40 x 32 x 40	WS - 75 - 40 x 32	25	13.50
	50 x 32 x 50	WS - 75 - 50 x 32	24	15.70
	50 x 40 x 50	WS - 75 - 50 x 40	18	12.00
	63 x 32 x 63	WS - 75 - 63 x 32	12	11.74
	63 x 40 x 63	WS - 75 - 63 x 40	10	10.20
mm x mm x mm				
10 bar	63 x 50 x 63	WS - 75 - 63 x 50	10	11.10
	75 x 50 x 75	WS - 75 - 75 x 50	6	12.00
	75 x 63 x 75	WS - 75 - 75 x 63	6	13.00
	90 x 63 x 90	WS - 75 - 90 x 63	7	20.10
	90 x 75 x 90	WS - 75 - 90 x 75	7	21.00
	110 x 63 x 110	WS - 75 - 110 x 63	6	24.30
	110 x 75 x 110	WS - 75 - 110 x 75	5	22.20
	110 x 90 x 110	WS - 75 - 110 x 90	5	23.50
mm x mm x mm				

Male Threaded Tees

قسام سن خارجي



Description	Nom. Dia mm x inch x mm	Code	Quantity Per Carton	Weight Kgs
16 bar	16 x 1/2" x 16	WS - 90 - 16 x 1/2	175	12.00
	16 x 3/4" x 16	WS - 90 - 16 x 3/4	175	12.20
	20 x 1/2" x 20	WS - 90 - 20 x 1/2	135	10.10
	20 x 3/4" x 20	WS - 90 - 20 x 3/4	135	10.20
	25 x 1/2" x 25	WS - 90 - 25 x 1/2	120	12.50
	25 x 3/4" x 25	WS - 90 - 25 x 3/4	100	13.90
	25 x 1" x 25	WS - 90 - 25 x 1	100	14.00
	32 x 1/2" x 32	WS - 90 - 32 x 1/2	14.30	
	32 x 3/4" x 32	WS - 90 - 32 x 3/4	60	14.45
	32 x 1" x 32	WS - 90 - 32 x 1	60	14.40
mm x Inch (BSP Female) x mm				
10 bar	40 x 1" x 40	WS - 90 - 40 x 1	40	13.00
	40 x 1 1/4" x 40	WS - 90 - 40 x 1 1/4	40	12.90
	40 x 1 1/2" x 40	WS - 90 - 40 x 1 1/2	30	13.30
	50 x 1 1/4" x 50	WS - 90 - 50 x 1 1/4	25	14.10
	50 x 1 1/2" x 50	WS - 90 - 50 x 1 1/2	25	14.70
	63 x 1 1/2" x 63	WS - 90 - 63 x 1 1/2	12	17.12
	63 x 2" x 75	WS - 90 - 63 x 2	12	11.00
	75 x 2" x 75	WS - 90 - 75 x 2	9	12.00
	75 x 2 1/2" x 75	WS - 90 - 75 x 2 1/2	9	11.80
	90 x 3" x 90	WS - 90 - 90 x 3	8	20.85
110 x 4" x 110				
110 x 4" x 110				

Tees

قسام



Description	Nom. Dia mm x mm x mm	Code	Quantity Per Carton	Weight Kgs
16 bar	16 x 16 x 16	WS - 80 - 16 x 16	125	10.60
	20 x 20 x 20	WS - 80 - 20 x 20	125	17.55
	25 x 25 x 25	WS - 80 - 25 x 25	90	16.95
	32 x 32 x 32	WS - 80 - 32 x 32	50	15.40
	40 x 40 x 40	WS - 80 - 40 x 40	20	11.65
	50 x 50 x 50	WS - 80 - 50 x 50	15	11.95
	63 x 63 x 63	WS - 80 - 63 x 63	10	11.65
	75 x 75 x 75	WS - 80 - 75 x 75	6	12.70
	90 x 90 x 90	WS - 80 - 90 x 90	6	20.70
	110 x 110 x 110	WS - 80 - 110 x 110	5	23.55
mm x mm x mm				
10 bar				

COMPRESSION FITTINGS

Male Adaptor

بداية سن خارجي



Description	Nom. Dia mm x inch	Code	Quantity Per Carton	Weight Kgs
16 bar mm x Inch (BSP Male)	16 x 1/2"	WS - 95 - 16 x 1/2	300	8.60
	16 x 3/4"	WS - 95 - 16 x 3/4	300	9.30
	20 x 1/2"	WS - 95 - 20 x 1/2	200	10.55
	20 x 3/4"	WS - 95 - 20 x 3/4	200	10.80
	25 x 1/2"	WS - 95 - 25 x 1/2	300	18.15
	25 x 3/4"	WS - 95 - 25 x 3/4	300	17.15
	25 x 1"	WS - 95 - 25 x 1	300	18.50
	32 x 1/2"	WS - 95 - 32 x 1/2	150	16.00
	32 x 3/4"	WS - 95 - 32 x 3/4	150	15.80
	32 x 1"	WS - 95 - 32 x 1	150	15.10
	32 x 1 1/2"	WS - 95 - 32 x 1 1/2	150	16.50
	40 x 1 1/4"	WS - 95 - 40 x 1 1/4	75	14.90
	40 x 1 1/2"	WS - 95 - 40 x 1 1/2	75	14.76
	40 x 2"	WS - 95 - 40 x 2	75	14.20
	50 x 1 1/4"	WS - 95 - 50 x 1 1/4	45	13.90
	50 x 1 1/2"	WS - 95 - 50 x 1 1/2	45	14.55
	50 x 2"	WS - 95 - 50 x 2	45	13.20
	63 x 1 1/2"	WS - 95 - 63 x 1 1/2	30	13.20
	63 x 2"	WS - 95 - 63 x 2	30	13.50
	75 x 2"	WS - 95 - 75 x 2	20	13.20
	75 x 2 1/2"	WS - 95 - 75 x 2 1/2	20	13.95
	75 x 3"	WS - 95 - 75 x 3	20	14.30
	90 x 3"	WS - 95 - 90 x 3	20	22.20
	90 x 4"	WS - 95 - 90 x 4	20	28.33
	110 x 3"	WS - 95 - 110 x 3	18	27.75
	110 x 4"	WS - 95 - 110 x 4	18	26.45
	125 x 4"	WS - 95 - 125 x 4	10	27.80
	125 x 5"	WS - 95 - 125 x 5	10	28.50

Coupling

وصلة



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
16 bar mm x mm	16 x 16	WS - 105 - 16 x 16	250	11.20
	20 x 20	WS - 105 - 20 x 20	125	11.00
	25 x 25	WS - 105 - 25 x 25	175	17.30
	32 x 32	WS - 105 - 32 x 32	100	17.85
	40 x 40	WS - 105 - 40 x 40	45	15.35
	50 x 50	WS - 105 - 50 x 50	35	15.80
	63 x 63	WS - 105 - 63 x 63	20	14.35
	75 x 75	WS - 105 - 75 x 75	12	15.80
	90 x 90	WS - 105 - 90 x 90	12	24.15
	110 x 110	WS - 105 - 110 x 110	9	23.30
10 bar	125 x 125	WS - 105 - 125 x 125	6	29.70

Coupling

وصلة نقاص



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
16 bar mm x mm	20 x 16	WS - 110 - 20 x 16	180	12.18
	25 x 20	WS - 110 - 25 x 20	125	11.00
	32 x 25	WS - 110 - 32 x 25	135	12.00
	32 x 25	WS - 110 - 32 x 25	125	17.45
	40 x 25	WS - 110 - 40 x 25	70	15.30
	40 x 32	WS - 110 - 40 x 32	60	15.15
	50 x 25	WS - 110 - 50 x 25	55	14.80
	50 x 32	WS - 110 - 50 x 32	50	15.95
	50 x 40	WS - 110 - 50 x 40	35	13.90
	63 x 32	WS - 110 - 63 x 32	25	11.85
10 bar	63 x 40	WS - 110 - 63 x 40	24	11.70
	63 x 50	WS - 110 - 63 x 50	24	11.65
	75 x 50	WS - 110 - 75 x 50	18	12.00
	75 x 63	WS - 110 - 75 x 63	15	14.50
	90 x 63	WS - 110 - 90 x 63	18	25.45
	90 x 75	WS - 110 - 90 x 75	18	28.25
	110 x 63	WS - 110 - 110 x 63	12	21.35
	110 x 90	WS - 110 - 110 x 90	10	23.35
	125 x 110	WS - 110 - 125 x 110	6	21.94

Female Adaptors

بداية سن داخلي



Description	Nom. Dia mm x inch	Code	Quantity Per Carton	Weight Kgs
16 bar mm x Inch (BSP Male)	16 x 1/2"	WS - 100 - 16 x 1/2	300	9.00
	16 x 3/4"	WS - 100 - 16 x 3/4	300	10.00
	20 x 1/4"	WS - 100 - 20 x 1/4	200	10.50
	20 x 1/2"	WS - 100 - 20 x 1/2	200	10.80
	25 x 1/2"	WS - 100 - 25 x 1/2	250	19.00
	25 x 3/4"	WS - 100 - 25 x 3/4	250	18.65
	25 x 1"	WS - 100 - 25 x 1	250	19.35
	32 x 1/2"	WS - 100 - 32 x 1/2	150	15.80
	32 x 3/4"	WS - 100 - 32 x 3/4	150	16.20
	32 x 1"	WS - 100 - 32 x 1	150	16.95
	40 x 1"	WS - 100 - 40 x 1	70	17.00
	40 x 1 1/4"	WS - 100 - 40 x 1 1/4	70	16.80
	40 x 1 1/2"	WS - 100 - 40 x 1 1/2	70	16.60
	50 x 1 1/4"	WS - 100 - 50 x 1 1/4	50	13.00
	50 x 1 1/2"	WS - 100 - 50 x 1 1/2	50	13.45
	50 x 2"	WS - 100 - 50 x 2	50	14.00
	63 x 1 1/2"	WS - 100 - 63 x 1 1/2	30	14.00
	63 x 2"	WS - 100 - 63 x 2	30	13.95
	75 x 2"	WS - 100 - 75 x 2	20	12.95
	75 x 2 1/2"	WS - 100 - 75 x 2 1/2	20	13.00
	90 x 3"	WS - 100 - 90 x 3	24	28.60
	110 x 3"	WS - 100 - 110 x 3	18	28.00
	110 x 4"	WS - 100 - 110 x 4	18	27.04

End Cap

سدة ربط



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
16 bar mm	16	WS - 115 - 16	400	10.84
	20	WS - 115 - 20	250	13.02
	25	WS - 115 - 25	300	15.85
	32	WS - 115 - 32	180	17.65
	40	WS - 115 - 40	80	14.65
	50	WS - 115 - 50	50	12.80
	63	WS - 115 - 63	40	16.35
	75	WS - 115 - 75	20	15.60
	90	WS - 115 - 90	24	27.15
	110	WS - 115 - 110	18	26.60
10 bar	125	WS - 115 - 125	10	27.30

COMPRESSION FITTINGS

COMPRESSION FITTINGS

Equal Elbows

كوع



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
16 bar mm x mm	16 x 16	WS - 120 - 16 x 16	200	17.00
	20 x 20	WS - 120 - 20 x 20	120	18.70
	25 x 25	WS - 120 - 25 x 25	150	14.00
	32 x 32	WS - 120 - 32 x 32	70	15.00
	40 x 40	WS - 120 - 40 x 40	40	13.25
	50 x 50	WS - 120 - 50 x 50	25	14.20
	63 x 63	WS - 120 - 63 x 63	15	10.20
	75 x 75	WS - 120 - 75 x 75	10	10.00
	90 x 90	WS - 120 - 90 x 90	9	20.00
	110 x 110	WS - 120 - 110 x 110	7	27.00

Male Threaded Elbows

كوع سن خارجي



Description	Nom. Dia mm x inch	Code	Quantity Per Carton	Weight Kgs
16 bar mm x inch (BSP male)	16 x 1/2"	WS - 130 - 16 x 1/2	300	9.75
	16 x 3/4"	WS - 130 - 16 x 3/4	300	10.05
	20 x 1/2"	WS - 130 - 20 x 1/2	175	10.45
	20 x 3/4"	WS - 130 - 20 x 3/4	175	10.85
	25 x 1/2"	WS - 130 - 25 x 1/2	225	14.55
	25 x 3/4"	WS - 130 - 25 x 3/4	225	17.45
	25 x 1"	WS - 130 - 25 x 1	200	14.55
	32 x 1/2"	WS - 130 - 32 x 1/2	125	16.50
	32 x 3/4"	WS - 130 - 32 x 3/4	125	16.40
	32 x 1"	WS - 130 - 32 x 1	125	16.90
	40 x 1"	WS - 130 - 40 x 1	50	14.00
	40 x 1 1/4"	WS - 130 - 40 x 1 1/4	50	14.20
	40 x 1 1/2"	WS - 130 - 40 x 1 1/2	50	13.10
	50 x 1 1/4"	WS - 130 - 50 x 1 1/4	35	12.20
	50 x 1 1/2"	WS - 130 - 50 x 1 1/2	35	12.55
	50 x 2"	WS - 130 - 50 x 2	35	12.30
	63 x 1 1/2"	WS - 130 - 63 x 1 1/2	25	13.35
	63 x 2"	WS - 130 - 63 x 2	25	13.30
	75 x 2"	WS - 130 - 75 x 2	15	12.00
	75 x 2 1/2"	WS - 130 - 75 x 2 1/2	15	12.20
10 bar	90 x 3"	WS - 130 - 90 x 3	15	23.85
	90 x 4"	WS - 130 - 90 x 4	15	24.00
	110 x 3"	WS - 130 - 110 x 3	12	24.10
	110 x 4"	WS - 130 - 110 x 4	12	25.75

Female Threaded Elbows

كوع سن داخلي



Description	Nom. Dia mm x inch	Code	Quantity Per Carton	Weight Kgs
16 bar mm x inch (BSP Female)	16 x 1/2"	WS - 125 - 16 x 1/2	300	10.00
	16 x 3/4"	WS - 125 - 16 x 3/4	300	9.80
	20 x 1/2"	WS - 125 - 20 x 1/2	175	9.50
	20 x 3/4"	WS - 125 - 20 x 3/4	300	17.00
	25 x 1/2"	WS - 125 - 25 x 1/2	200	17.50
	25 x 3/4"	WS - 125 - 25 x 3/4	200	16.40
	25 x 1"	WS - 125 - 25 x 1	200	18.00
	32 x 1/2"	WS - 125 - 32 x 1/2	150	18.84
	32 x 3/4"	WS - 125 - 32 x 3/4	125	16.90
	32 x 1"	WS - 125 - 32 x 1	130	17.80
	40 x 1"	WS - 125 - 40 x 1	70	16.00
	40 x 1 1/4"	WS - 125 - 40 x 1 1/4	70	15.50
	40 x 1 1/2"	WS - 125 - 40 x 1 1/2	70	15.50
	50 x 1 1/4"	WS - 125 - 50 x 1 1/4	70	14.00
	50 x 1 1/2"	WS - 125 - 50 x 1 1/2	40	13.50
	50 x 2"	WS - 125 - 50 x 2	35	13.95
	63 x 1 1/2"	WS - 125 - 63 x 1 1/2	25	14.00
	63 x 2"	WS - 125 - 63 x 2	25	13.05
	75 x 2"	WS - 125 - 75 x 2	18	12.00
	75 x 2 1/2"	WS - 125 - 75 x 2 1/2	18	12.50
10 bar	90 x 3"	WS - 125 - 90 x 3	15	22.35
	90 x 4"	WS - 125 - 90 x 4	15	23.00
	110 x 3"	WS - 125 - 110 x 3	12	22.00
	110 x 4"	WS - 125 - 110 x 4	12	21.25

Flanged Adaptors

بداية فلنجة



Description	Nom. Dia mm x inch	Code	Quantity Per Carton	Weight Kgs
16 bar mm x inch (BSP male)	50 x 2"	WS - 135 - 50	30	14.00
	63 x 2"	WS - 135 - 63	20	11.25
	75 x 2"	WS - 135 - 75	18	12.00
	90 x 3"	WS - 135 - 90	18	25.10
	110 x 4"	WS - 135 - 110	12	22.35
10 bar	125 x 5"	WS - 135 - 125	10	29.35

UNION FITTINGS - UNIFIT COMPRESSION FITTINGS

UniFit Elbow - Male Female

كوع



Description	Nom. Dia inch x inch	Code	Quantity Per Carton	Weight Kgs
Inch x Inch BSP WS - UF	1" x 1"	WS - UF - 130-50	75	13.00
	1 1/2" x 1 1/2"	WS - UF - 130-63	60	12.00

UniFit - Cross Tee
(with Male Thread)



Description	Nom. Dia mm x inch x mm x inch	Code	Quantity Per Carton	Weight Kgs
mm x mm WS - COCT	63 x 2" x 63 x 2"	WS - UF - 90 - 63 x 2	9	10.55
	63 x 2"	WS - UF - 90 - 63 x 20	12	11.00

UniFit - 3 Way Cross Tee



Description	Nom. Dia inch x inch	Code	Quantity Per Carton	Weight Kgs
Comp x BSP Female x Comp WS - CFT	WS-CFT32F34	WS-CFT32F34 → W/O RAISER	50	12.70
	WS-CFT32F34R	WS-CFT32F34R → WITH RAISER	50	12.70

COMPRESSION FITTINGS - KIT PARTS

Cap



Description	Nom. Dia mm	Code	Quantity Per Carton	Weight Kgs
mm 16 bar	16	WS - CAP - 16		
	20	WS - CAP - 20		
	25	WS - CAP - 25		
	32	WS - CAP - 32		
	40	WS - CAP - 40		
	50	WS - CAP - 50		
	63	WS - CAP - 63		
	75	WS - CAP - 75		
	90	WS - CAP - 90		
	110	WS - CAP - 110		
10 bar	125	WS - CAP - 125		

Thrust Ring



Description	Nom. Dia mm	Code	Quantity Per Carton	Weight Kgs
mm 16 bar	16	WS - TR - 16		
	20	WS - TR - 20		
	25	WS - TR - 25		
	32	WS - TR - 32		
	40	WS - TR - 40		
	50	WS - TR - 50		
	63	WS - TR - 63		
	75	WS - TR - 75		
	90	WS - TR - 90		
	110	WS - TR - 110		
10 bar	125	WS - TR - 125		

Grip Ring



Description	Nom. Dia mm	Code	Quantity Per Carton	Weight Kgs
mm 16 bar	16	WS - GRIP - 16		
	20	WS - GRIP - 20		
	25	WS - GRIP - 25		
	32	WS - GRIP - 32		
	40	WS - GRIP - 40		
	50	WS - GRIP - 50		
	63	WS - GRIP - 63		
	75	WS - GRIP - 75		
	90	WS - GRIP - 90		
	110	WS - GRIP - 110		
10 bar	125	WS - GRIP - 125		

O' Ring



Description	Nom. Dia mm	Code	Quantity Per Carton	Weight Kgs
mm 16 bar	16	WS - RING - 16		
	20	WS - RING - 20		
	25	WS - RING - 25		
	32	WS - RING - 32		
	40	WS - RING - 40		
	50	WS - RING - 50		
	63	WS - RING - 63		
	75	WS - RING - 75		
	90	WS - RING - 90		
	110	WS - RING - 110		
10 bar	125	WS - RING - 125		

COMPRESSION FITTINGS

GREEN COMPRESSION FITTINGS

قطع الربط الخضراء (LC Fitting)

Materials

Parts	Material	Colour
Body (A)	High viscosity and mechanicals resistance polypropylene	black
Blocking bush (D)	HDPE	black
Nut (B)	Polypropylene with dye master of high stability to UV rays and solidity to heat (8 grade according to standard DIN 54004)	green
Clinching ring (C)	Polyacetal resin (POM) with high mechanical resistance and hardness	white
O Ring gasket (E)	Special elastomeric acrylonitrile rubber (NBR) for alimentary use	black
Reinforcing ring	Stainless steel AISA 430 (UNI X8Cr17, W.nr 14828) for female threads from 2" to 4"	-



Reference Standards

- **Operating pressures:** UNI 9561 :2006; DIN 8076:2007; ISO 14236:2000; GW 335-83:2011; SANS 14236:2003; AS/NZS 4129:2008.
- **Polyethylene (PE) pipes:** UNI 7990:2004; UNI EN 12201-2:2004; DIN 8074:1999
- **Fittings:** DM 17406/04/2004; 8S 6920:2000; W270; KTW
- **Threads:** ISO 7-1 :2007; UNI EN 10226-1 :2006; UNI EN ISO 228-1 :2003; ANSI ASME 81.20.1 :1983
- **Flanges:** UNI EN 1092-1 :2007; ISO 7005-1 :2011

Working Pressures

The Green Compression Fittings has been designed for maximum working pressures (PN ~ PFA*) of 10 bar (UNI 9562) from ø16 to ø110, except for items 201, 210, 211, 211, 221 with ø16 to ø32, wich can tolerate a maximum working pressure (PN ~ PFA*) of 12.5 bar.

ø	PFA*	PMA*	PEA*
16 - 63	10	12,5	15
75 - 110	10	12,5	15



TEES

قسام



	Description mm x mm x mm	Code	Size	QTY/CTN
mm x mm x mm	25x25x25	WS-80	LC-25	
	32x32x32	WS-80	LC-32	60
	40x40x40	WS-80	LC-40	40
	50x50x50	WS-80	LC-50	30
	63x63x63	WS-80	LC-63	11
	90x90x90	WS-80	LC-80	

TEE THREADED FEMALE

قسام سنة داخلية



	Description mm x inch	Code	Size	QTY/CTN
mm x inch	32X1"	WS-85	LC-32X1"	
	63X2"	WS-85	LC-63X2"	
	90X3"	WS-85	LC-90X3"	

TEE THREADED MALE

قسام سنة خارجية



	Description mm x inch	Code	Size	QTY/CTN
mm x inch	25 X 3/4"	WS-90	LC-25X3/4"	
	32 X 1"	WS-90	LC-32X1"	
	50 X 1 1/2"	WS-90	LC-50X1 1/2"	
	63 X 2"	WS-90	LC-63X2"	
	90 X 3"	WS-90	LC-90X3"	

MALE ADAPTOR

بداية سنة خارجية



	Description mm x inch	Code	Size	QTY/CTN
mm x inch	25 X 3/4"	WS-95	LC-25X3/4"	
	25 X 1"	WS-95	LC-25X1"	175
	32 X 3/4"	WS-95	LC-32X3/4"	
	32 X 1"	WS-95	LC-32X1"	200
	32 X 2"	WS-95	LC-32X2"	
	40 X 1 1/2"	WS-95	LC-40X1 1/2"	120
	40 X 2"	WS-95	LC-40X2"	
	50 X 1 1/2"	WS-95	LC-50X1 1/2"	70
	50 X 2"	WS-95	LC-50X2"	
	63 X 2"	WS-95	LC-63X2"	40
	63 X 3"	WS-95	LC-63X3"	

COMPRESSION FITTINGS

GREEN COMPRESSION FITTINGS

FEMALE ADAPTOR

بداية سنة داخلية



	Description mm x inch	Code	Size	QTY/CTN
mm x inch	32 X 1"	WS-100	LC-32X1"	
	63 X 2"	WS-100	LC-63X2"	
	90 X 3"	WS-100	LC-90X3"	

COUPLING

وصلة



	Description mm x mm x mm	Code	Size	QTY/CTN
mm x mm x mm	25X25	WS-105	LC-25	
	32X32	WS-105	LC-32	120
	40x40	WS-105	LC-40	70
	50x50	WS-105	LC-50	40
	63x63	WS-105	LC-63	24
	90X90	WS-105	LC-90	

RED.COUPLING

وصلة نقاص



	Description mm x mm	Code	Size	QTY/CTN
mm x mm	63X32	WS-110	LC-63X32	
	63X50	WS-110	LC-63X50	
	32X25	WS-110	LC-32X25	
	90X63	WS-110	LC-90X63	

END CAP

سدة ربط



	Description mm x mm x mm	Code	Size	QTY/CTN
mm x mm x mm	32x32x32	WS-115	LC-32	
	40x40x40	WS-115	LC-40	
	50x50x50	WS-115	LC-50	
	63x63x63	WS-115	LC-63	
	90x90x90	WS-115	LC-90	

EQUAL ELBOW

كوع



	Description mm x mm	Code	Size	QTY/CTN
mm x mm	25 x 25	WS-120	LC-25	
	32 x 32	WS-120	LC-32	100
	40 x 40	WS-120	LC-40	65
	50 x 50	WS-120	LC-50	35
	63 x 63	WS-120	LC-63	18
	90 x 90	WS-120	LC-90	

ELBOW THREADED FEMALE

كوع سنه داخلية



	Description mm x inch	Code	Size	QTY/CTN
mm x inch	90X3"	WS-125	LC-90X30	

ELBOW THREADED MALE

كوع سنه خارجية



	Description mm x inch	Code	Size	QTY/CTN
mm x inch	25X3/4"	WS-130	LC-25X3/4"	
	32X1"	WS-130	LC-32X1"	
	50X1 1/2"	WS-130	LC-50X1 1/2"	
	63X2"	WS-130	LC-63X2"	
	90X3"	WS-130	LC-90X3"	

WE COUNT EVERY DROP.



CLAMP SADDLES

CLAMP SADDLES

INTRODUCTION :

AlWasail PE. Pipes & Fittings Manufacturer offers a complete range Pipes Saddles for Polyethylene, PVC, Steel, Aluminum, etc., and that will meet your specific needs.

All products are quality made in the Kingdom of Saudi Arabia from the virgin raw material, and will hold up the closest of tolerances. The more you compare our quality, features and selection, the better we look!

AlWasail products provides the following features & specifications why you should select our Saddles over existing competitive

SPECIAL FEATURES :

AlWasail PP Saddle clamp is specially designed for tapping connections from Service Main.

AlWasail Clamp Saddles have quite different structure and are consist of two parts, (Base and Upper Part). Both pieces are made of Polypropylene. According to their sizes clamp saddles may have two, four or six bolts

AlWasail saddles is the quickfit and easiest saddle on the market to install.

No need Glue, Primer or precutting

More flexible, reliable than the conventional fittings

Less installation time to reduce labour cost

Provide "O" ring to prevent leakage

Easy installation and maintenance the underground water lines

Saddle installation requires minimal excavation work to reduce time and labour cost

Suitable for all Polyethylene, PVC, steel pipes etc., and also suitable for all DIN & ASTM pipes

PP saddles are absolutely Rust-Free and Corrosion-Free over the other type of saddles.

AL-WASAIL CLAMP SADDLE CONSISTS OF

- a) Base
- b) Upper part
- c) 'O' Ring
- d) Bolt & Nuts

MATERIAL SPECIFICATION

Base & Upper part :

Saddle (Base and Upper Part) Both pieces are made of Combination of Polypropylene Grade PP - 570 and PP - 440

'O' Ring

'O' Rings are made of a styrene- Butadiene - rubber (SBR)

Bolt & Nuts

Bolt and nuts are made of stainless steel with yellow plated Hex Bolts, full thread Din 933 - Cl - 4.8

Stainless Steel Bolt & Nut (Optional) to be supplied on Request

Reinforced Ring

Reinforced ring made of stainless steel (Pro & Super saddle Model only)

No of Bolts / Saddle :

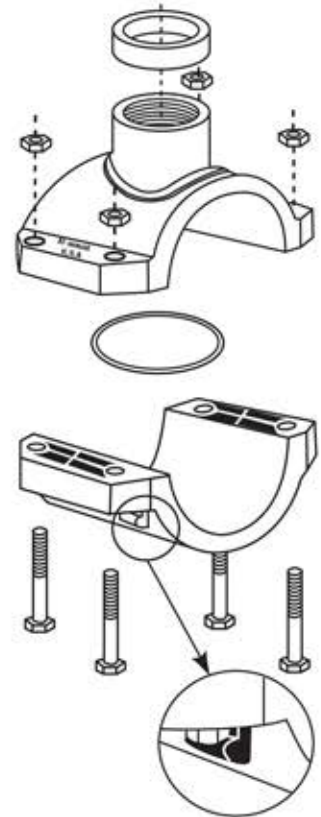
Sizes (mm)	No. of Bolts
25 -50	2
63 - 110	4
125 - 315	6

Manufacturing Standard :
According to DIN - ASTM & others

Colour :
Black

Execution :
Injection

Tapping Out let :
BSP Thread



PRESSURE RATING :

Alwasail pipe saddles will maintain a compression seal for normal working pressures 16 bar.

CERTIFICATION :

Alwasail pipe saddles have been approved by TUV CERT ISO 9002 Certification Body of RWTUV systems Gmph.

CODE	TYPE	L CM	B CM	H CM	VOLUME M ³
S	Small	40	30	30	0.036
M	Medium	60	40	25	0.06
L	Large	60	50	40	0.12

SANITARY LAWS :

Materials are complies with recommendations and statutory regulations in the USA and most European Countries regarding materials intended to come in contact with food stuff.

CERTIFICATIONS :

Alwasail Barbed fittings have been approved by TUV CERT ISO9002 Certification Body of RWTUV GMPH

INSTRUCTION FOR SADDLE ASSEMBLY

Position "O" ring in top half of the saddle



1.

Position bottom half of saddle on pipe



2.

Position top half of saddle on pipe and insert bolts from bottom



3.

Fasten nut and bolts by alwassel key for saddle
(Part # WSK - T 513)



4.

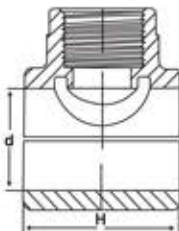
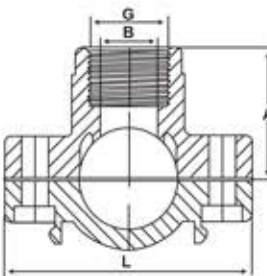
Drill hole in pipe with hole saw bit.



5.

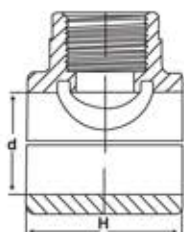
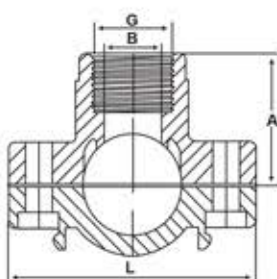
STANDARD CLAMP SADDLE

DESCRIPTION	Nominal Diameter	Code	No. of Bolts	Pressure Rating Bar	Quantity per Carton	Weight Kgs
مربط STANDARD CLAMP SADDLES WS-140 Material : PP Standard : DIN Execution : Injection Color : Black Out let Thread : BSP	mm(d) x Inch(G)					
	25 x 1/2"	WS - 140 - 25 x 1/2"	2	16	180	10.45
	25 x 3/4"	WS - 140 - 25 x 3/4"	2	16	170	10.50
	32 x 1/2"	WS - 140 - 32 x 1/2"	2	16	125	13.35
	32 x 3/4"	WS - 140 - 32 x 3/4"	2	16	120	13.10
	32 x 1"	WS - 140 - 32 x 1"	2	16	100	11.50
	40 x 1/2"	WS - 140 - 40 x 1/2"	2	16	100	13.60
	40 x 3/4"	WS - 140 - 40 x 3/4"	2	16	80	11.00
	40 x 1"	WS - 140 - 40 x 1"	2	16	70	10.21
	50 x 1/2"	WS - 140 - 50 x 1/2"	2	16	70	12.35
	50 x 3/4"	WS - 140 - 50 x 3/4"	2	16	70	11.75
	50 x 1"	WS - 140 - 50 x 1"	2	16	65	10.65
	50 x 1 1/4"	WS - 140 - 50 x 1 1/4"	2	16	60	11.35
	50 x 1 1/2"	WS - 140 - 50 x 1 1/2"	2	16		
	63 x 1/2"	WS - 140 - 63 x 1/2"	4	16	45	12.55
	63 x 3/4"	WS - 140 - 63 x 3/4"	4	16	45	12.70
	63 x 1"	WS - 140 - 63 x 1"	4	16	40	11.80
	63 x 1 1/4"	WS - 140 - 63 x 1 1/4"	4	16	40	12.40
	63 x 1 1/2"	WS - 140 - 63 x 1 1/2"	4	16	35	11.55
	75 x 1/2"	WS - 140 - 75 x 1/2"	4	10	45	13.40
	75 x 3/4"	WS - 140 - 75 x 3/4"	4	10	45	13.20
	75 x 1"	WS - 140 - 75 x 1"	4	10	40	11.80
	75 x 1 1/4"	WS - 140 - 75 x 1 1/4"	4	10	40	12.10
	75 x 1 1/2"	WS - 140 - 75 x 1 1/2"	4	10	35	10.65
	75 x 2"	WS - 140 - 75 x 2"	4	10	30	14.10
	90 x 1/2"	WS - 140 - 90 x 1/2"	4	10	30	11.40
	90 x 3/4"	WS - 140 - 90 x 3/4"	4	10	30	11.25
	90 x 1"	WS - 140 - 90 x 1"	4	10	30	11.35
	90 x 1 1/4"	WS - 140 - 90 x 1 1/4"	4	10	30	12.20
	90 x 1 1/2"	WS - 140 - 90 x 1 1/2"	4	10	30	11.55
	90 x 2"	WS - 140 - 90 x 2"	4	10	25	10.10
	110 x 1/2"	WS - 140 - 110 x 1/2"	4	10	16	10.60
	110 x 3/4"	WS - 140 - 110 x 3/4"	4	10	16	10.85
	110 x 1"	WS - 140 - 110 x 1"	4	10	16	10.55
	110 x 1 1/4"	WS - 140 - 110 x 1 1/4"	4	10	16	10.40
	110 x 1 1/2"	WS - 140 - 110 x 1 1/2"	4	10	16	10.10
	110 x 2"	WS - 140 - 110 x 2"	4	10	15	10.40
	110 x 3"	WS - 140 - 110 x 3"	4	10	10	7.35
	125 x 1/2"	WS - 140 - 125 x 1/2"	6	10	10	8.40
	125 x 3/4"	WS - 140 - 125 x 3/4"	6	10	10	8.45
	125 x 1"	WS - 140 - 125 x 1"	6	10	10	8.45
	125 x 1 1/4"	WS - 140 - 125 x 1 1/4"	6	10	10	8.50
	125 x 1 1/2"	WS - 140 - 125 x 1 1/2"	6	10	10	8.40
	125 x 2"	WS - 140 - 125 x 2"	6	10	10	8.70
	125 x 3"	WS - 140 - 125 x 3"	6	10	10	8.70
	125 x 4"	WS - 140 - 125 x 4"	6	10	8	8.88



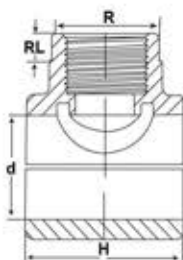
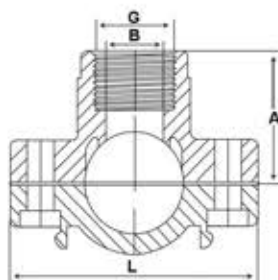
STANDARD CLAMP SADDLE

DESCRIPTION	Nominal Diameter	Code	No. of Bolts	Pressure Rating Bar	Quantity per Carton	Weight Kgs
مربط STANDARD CLAMP SADDLES WS-140 Material : PP Standard : DIN Execution : Injection Color : Black Out let Thread : BSP	mm(d) x Inch(G)					
	160 x 1/2"	WS - 140 - 160 x 1/2"	6	10	8	9.00
	160 x 3/4"	WS - 140 - 160 x 3/4"	6	10	8	8.80
	160 x 1"	WS - 140 - 160 x 1"	6	10	8	8.85
	160 x 1 1/4"	WS - 140 - 160 x 1 1/4"	6	10	8	8.98
	160 x 1 1/2"	WS - 140 - 160 x 1 1/2"	6	10	8	8.95
	160 x 2"	WS - 140 - 160 x 2"	6	10	8	8.95
	160 x 2 1/2"	WS - 140 - 160 x 2 1/2"	6	10	8	9.50
	160 x 3"	WS - 140 - 160 x 3"	6	10	8	9.38
	160 x 4"	WS - 140 - 160 x 4"	6	10	6	7.00
	200 x 1"	WS - 140 - 200 x 1"	6	10	6	12.20
	200 x 1 1/4"	WS - 140 - 200 x 1 1/4"	6	10	6	13.10
	200 x 1 1/2"	WS - 140 - 200 x 1 1/2"	6	10	6	12.50
	200 x 2"	WS - 140 - 200 x 2"	6	10	6	12.10
	200 x 3"	WS - 140 - 200 x 3"	6	10	6	14.40
	200 x 4"	WS - 140 - 200 x 4"	6	10	5	12.16
	225 x 1"	WS - 140 - 225 x 1"	6	10	6	13.00
	225 x 1 1/4"	WS - 140 - 225 x 1 1/4"	6	10	6	13.50
	225 x 1 1/2"	WS - 140 - 225 x 1 1/2"	6	10	6	13.80
	225 x 2"	WS - 140 - 225 x 2"	6	10	6	14.15
	225 x 3"	WS - 140 - 225 x 3"	6	10	6	14.10
	225 x 4"	WS - 140 - 225 x 4"	6	10	5	13.10
	250 x 1"	WS - 140 - 250 x 1"	6	10	4	10.00
	250 x 1 1/4"	WS - 140 - 250 x 1 1/4"	6	10	4	10.20
	250 x 1 1/2"	WS - 140 - 250 x 1 1/2"	6	10	4	10.00
	250 x 2"	WS - 140 - 250 x 2"	6	10	4	9.85
	250 x 3"	WS - 140 - 250 x 3"	6	10	4	10.08
	250 x 4"	WS - 140 - 250 x 4"	6	10	4	9.84



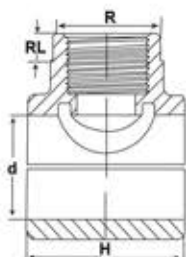
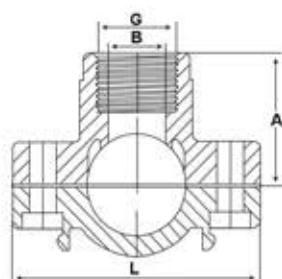
SUPER CLAMP SADDLE WITH STAINLESS STEEL RING

DESCRIPTION	Nominal Diameter	Code	No. of Bolts	Pressure Rating Bar	Quantity per Carton	Weight Kgs
مربط بحلقة ستيل SUPER CLAMP SADDLE WITH STAINLESS STEEL RING WS - 140 - SS Material : PP Standard : DIN Execution : Injection Color : Black Out let Thread : BSP	mm(d) x Inch(G)					
	25 x 1/2"	WS - 140 - SS - 25 x 1/2"	2	16	180	15.20
	25 x 3/4"	WS - 140 - SS - 25 x 3/4"	2	16	170	15.70
	32 x 1/2"	WS - 140 - SS - 32 x 1/2"	2	16	125	15.40
	32 x 3/4"	WS - 140 - SS - 32 x 3/4"	2	16	120	12.05
	32 x 1"	WS - 140 - SS - 32 x 1"	2	16	100	11.70
	40 x 1/2"	WS - 140 - SS - 40 x 1/2"	2	16	100	13.00
	40 x 3/4"	WS - 140 - SS - 40 x 3/4"	2	16	80	11.55
	40 x 1"	WS - 140 - SS - 40 x 1"	2	16	70	10.35
	50 x 1/2"	WS - 140 - SS - 50 x 1/2"	2	16	75	12.45
	50 x 3/4"	WS - 140 - SS - 50 x 3/4"	2	16	70	11.65
	50 x 1"	WS - 140 - SS - 50 x 1"	2	16	65	10.75
	50 x 1 1/4"	WS - 140 - SS - 50 x 1 1/4"	2	16	60	13.01
	63 x 1/2"	WS - 140 - SS - 63 x 1/2"	4	16	45	12.75
	63 x 3/4"	WS - 140 - SS - 63 x 3/4"	4	16	45	12.90
	63 x 1"	WS - 140 - SS - 63 x 1"	4	16	40	11.90
	63 x 1 1/4"	WS - 140 - SS - 63 x 1 1/4"	4	16	40	12.70
	63 x 1 1/2"	WS - 140 - SS - 63 x 1 1/2"	4	16	35	10.80
	75 x 1/2"	WS - 140 - SS - 75 x 1/2"	4	10	45	14.85
	75 x 3/4"	WS - 140 - SS - 75 x 3/4"	4	10	45	14.15
	75 x 1"	WS - 140 - SS - 75 x 1"	4	10	45	13.85
	75 x 1 1/4"	WS - 140 - SS - 75 x 1 1/4"	4	10	40	11.33
	75 x 1 1/2"	WS - 140 - SS - 75 x 1 1/2"	4	10	35	10.85
	75 x 2"	WS - 140 - SS - 75 x 2"	4	10	30	11.00
	90 x 1/2"	WS - 140 - SS - 90 x 1/2"	4	10	30	11.20
	90 x 3/4"	WS - 140 - SS - 90 x 3/4"	4	10	30	12.01
	90 x 1"	WS - 140 - SS - 90 x 1"	4	10	30	11.45
	90 x 1 1/4"	WS - 140 - SS - 90 x 1 1/4"	4	10	30	13.10
	90 x 1 1/2"	WS - 140 - SS - 90 x 1 1/2"	4	10	30	12.01
	90 x 2"	WS - 140 - SS - 90 x 2"	4	10	25	9.80
	110 x 1/2"	WS - 140 - SS - 110 x 1/2"	4	10	16	9.20
	110 x 3/4"	WS - 140 - SS - 110 x 3/4"	4	10	16	10.02
	110 x 1"	WS - 140 - SS - 110 x 1"	4	10	16	10.70
	110 x 1 1/4"	WS - 140 - SS - 110 x 1 1/4"	4	10	16	10.00
	110 x 1 1/2"	WS - 140 - SS - 110 x 1 1/2"	4	10	16	10.75
	110 x 2"	WS - 140 - SS - 110 x 2"	4	10	15	9.80
	110 x 3"	WS - 140 - SS - 110 x 3"	4	10	10	7.40
	125 x 1/2"	WS - 140 - SS - 125 x 1/2"	6	10	10	8.20
	125 x 3/4"	WS - 140 - SS - 125 x 3/4"	6	10	10	8.30
	125 x 1"	WS - 140 - SS - 125 x 1"	6	10	10	8.20
	125 x 1 1/4"	WS - 140 - SS - 125 x 1 1/4"	6	10	10	8.25
	125 x 1 1/2"	WS - 140 - SS - 125 x 1 1/2"	6	10	10	8.00
	125 x 2"	WS - 140 - SS - 125 x 2"	6	10	10	8.75
	125 x 3"	WS - 140 - SS - 125 x 3"	6	10	10	8.90
	125 x 4"	WS - 140 - SS - 125 x 4"	6	10	8	10.30

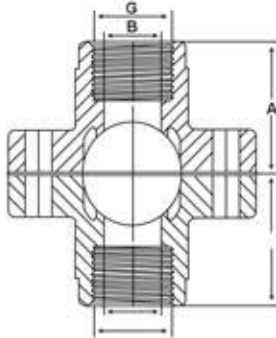
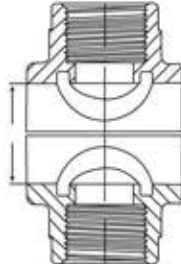


SUPER CLAMP SADDLE WITH STAINLESS STEEL RING

DESCRIPTION	Nominal Diameter	Code	No. of Bolts	Pressure Rating Bar	Quantity per Carton	Weight Kgs
مربط بحلقة ستيل SUPER CLAMP SADDLE WITH STAINLESS STEEL RING WS - 140 - SS Material : PP Standard : DIN Execution : Injection Color : Black Out let Thread : BSP	mm(d) x Inch(G)					
	160 x 1/2"	WS - 140 - SS - 160 x 1/2"	6	10	8	8.10
	160 x 3/4"	WS - 140 - SS - 160 x 3/4"	6	10	8	8.35
	160 x 1"	WS - 140 - SS - 160 x 1"	6	10	8	8.50
	160 x 1 1/4"	WS - 140 - SS - 160 x 1 1/4"	6	10	8	8.75
	160 x 1 1/2"	WS - 140 - SS - 160 x 1 1/2"	6	10	8	8.90
	160 x 2"	WS - 140 - SS - 160 x 2"	6	10	8	9.00
	160 x 2 1/2"	WS - 140 - SS - 160 x 2 1/2"	6	10	8	9.20
	160 x 3"	WS - 140 - SS - 160 x 3"	6	10	8	9.38
	160 x 4"	WS - 140 - SS - 160 x 4"	6	10	6	7.50
	200 x 1"	WS - 140 - SS - 200 x 1"	6	10	6	12.70
	200 x 1 1/2"	WS - 140 - SS - 200 x 1 1/2"	6	10	6	12.90
	200 x 2"	WS - 140 - SS - 200 x 2"	6	10	6	14.00
	200 x 3"	WS - 140 - SS - 200 x 3"	6	10	6	15.30
	200 x 4"	WS - 140 - SS - 200 x 4"	6	10	5	14.60
	225 x 1"	WS - 140 - SS - 225 x 1"	6	10	6	13.10
	225 x 1 1/4"	WS - 140 - SS - 225 x 1 1/4"	6	10	6	14.00
	225 x 1 1/2"	WS - 140 - SS - 225 x 1 1/2"	6	10	6	14.20
	225 x 2"	WS - 140 - SS - 225 x 2"	6	10	6	13.10
	225 x 3"	WS - 140 - SS - 225 x 3"	6	10	6	13.85
	225 x 4"	WS - 140 - SS - 225 x 4"	6	10	5	13.90
	250 x 1"	WS - 140 - SS - 250 x 1"	6	10	4	10.50
	250 x 1 1/2"	WS - 140 - SS - 250 x 1 1/2"	6	10	4	10.70
	250 x 2"	WS - 140 - SS - 250 x 2"	6	10	4	10.90
	250 x 3"	WS - 140 - SS - 250 x 3"	6	10	4	11.60
	250 x 4"	WS - 140 - SS - 250 x 4"	6	10	4	10.25



DOUBLE SADDLE

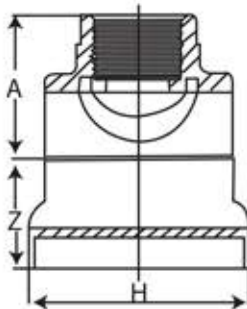
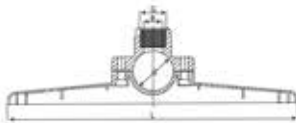
DESCRIPTION	ITEM CODE	CTN.QTY.
المربط المزدوج DOUBLE SADDLE WS - 145 Material : PP Standard : DIN Execution : Injection Color : Black Out let Thread : BSP   	WS-145-32X1	80 PCS
	WS-145-32X1/2	120 PCS
	WS-145-50X1	50 PCS
	WS-145-50X3/4	60 PCS
	WS-145-63X1	40 PCS
	WS-145-63X11/2	30 PCS
	WS-145-63X3/4	40 PCS
	WS-145-75X11/2	35 PCS
	WS-145-75X3/4	40 PCS
	WS-145-90X1	30 PCS
	WS-145-90X11/2	24 PCS
	WS-145-90X2	24 PCS
	WS-145-90X3/4	30 PCS
	WS-145-90X1/2	30 PCS
	WS-145-110X11/2	15 PCS
	WS-145-110/2	12 PCS
	WS-145-110X3/4	15 PCS
	WS-145-125X2	10 PCS
	WS-145-160X11/2	8 PCS
	WS-145-160X2	8 PCS

EURO SADDLE

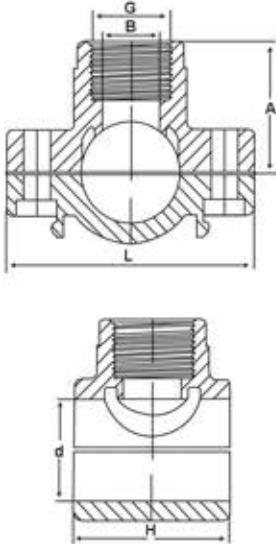
DESCRIPTION	Nominal Diameter	Code	No. of Bolts	Pressure Rating Bar	Quantity per Carton	Weight Kgs
مربط يورپو Euro Saddle WS - 140 - ES Material : PP Standard : DIN Execution : Injection Color : Black Out let Thread : BSP	mm(d) x Inch(G)					
	25 x 1/2"	WS-140-ES - 25 x 1/2"	2	10	200	12.00
	25 x 3/4"	WS-140-ES - 25 x 3/4"	2	10	200	12.50
	32 x 1/2"	WS-140-ES - 32 x 1/2"	2	10	180	11.70
	32 x 3/4"	WS-140-ES - 32 x 3/4"	2	10	180	11.90
	40 x 1/2"	WS-140-ES - 40 x 1/2"	2	10	160	9.50
	40 x 3/4"	WS-140-ES - 40 x 3/4"	2	10	150	9.70
	40 x 1"	WS-140-ES - 40 x 1"	2	10	140	10.00
	50 x 1/2"	WS-140-ES - 50 x 1/2"	2	10	140	9.50
	50 x 3/4"	WS-140-ES - 50 x 3/4"	2	10	130	10.00
	50 x 1"	WS-ES- 140 - 50 x 1"	2	10	120	10.60
	63 x 1/2"	WS-140-ES - 63 x 1/2"	4	10	70	16.00
	63 x 3/4"	WS-140-ES - 63 x 3/4"	4	10	70	16.50
	63 x 1"	WS-140-ES - 63 x 1"	4	10	60	13.50
	75 x 1/2"	WS-140-ES - 75 x 1/2"	4	10	55	15.00
	75 x 3/4"	WS-140-ES - 75 x 3/4"	4	10	55	15.50
	75 x 1"	WS-140-ES - 75 x 1"	4	10	55	15.70
	75 x 1 1/4"	WS-140-ES - 75 x 1 1/4"	4	10	50	15.50
	75 x 1 1/2"	WS-140-ES - 75 x 1 1/2"	4	10	50	15.20
	90 x 1/2"	WS-140-ES - 90 x 1/2"	4	10	40	14.00
	90 x 3/4"	WS-140-ES - 90 x 3/4"	4	10	40	14.50
	90 x 1"	WS-140-ES - 90 x 1"	4	10	40	14.70
	90 x 1 1/4"	WS-140-ES - 90 x 1 1/4"	4	10	35	13.20
	90 x 1 1/2"	WS-140-ES - 90 x 1 1/2"	4	10	35	13.50
	110 x 1/2"	WS-140-ES - 110 x 1/2"	4	10	30	11.00
	110 x 3/4"	WS-140-ES - 110 x 3/4"	4	10	30	11.30
	110 x 1"	WS-140-ES - 110 x 1"	4	10	30	11.50
	110 x 1 1/4"	WS-140-ES - 110 x 1 1/4"	4	10	30	11.70
	110 x 1 1/2"	WS-140-ES - 110 x 1 1/2"	4	10	30	11.85
	110 x 2"	WS-140-ES - 110 x 2"	4	10	24	9.70

SADDLE BASE

DESCRIPTION	Nominal Diameter	Code	No. of Bolts	Pressure Rating Bar	Quantity per Carton	Weight Kgs
مربط بقاعدة SADDLE BASE WS - SB Material : PP Standard : DIN Execution : Injection Color : Black Out let Thread : BSP	mm(d) x Inch(G)					
	50 x 1/2"	WS-SB - 50 x 1/2"	2	16	24	6.70
	50 x 3/4"	WS-SB - 50 x 3/4"	2	16	24	6.60
	50 x 1"	WS-SB - 50 x 1"	2	16	18	6.76
	50 x 1 1/4"	WS-SB - 50 x 1 1/4"	2	16	18	6.90
	63 x 1/2"	WS-SB - 63 x 1/2"	4	16	18	7.00
	63 x 3/4"	WS-SB - 63 x 3/4"	4	16	18	7.10
	63 x 1"	WS-SB - 63 x 1"	4	16	18	6.85
	63 x 1 1/4"	WS-SB - 63 x 1 1/4"	4	16	18	6.30
	63 x 1 1/2"	WS-SB - 63 x 1 1/2"	4	16	18	7.00
	75 x 1/2"	WS-SB - 75 x 1/2"	4	10	16	6.30
	75 x 3/4"	WS-SB - 75 x 3/4"	4	10	16	6.25
	75 x 1"	WS-SB - 75 x 1"	4	10	16	6.20
	75 x 1 1/4"	WS-SB - 75 x 1 1/4"	4	10	16	6.40
	75 x 1 1/2"	WS-SB - 75 x 1 1/2"	4	10	15	6.00
	75 x 2"	WS-SB - 75 x 2"	4	10	15	6.10
	90X1/2"	WS-SB-90X1/2		10		
	90X3/4"	WS-SB-90X3/4		10		
	90X1"	WS-SB-90X1		10		
	90X1 1/4"	WS-SB-90X1 1/4		10		
	90X1 1/2"	WS-SB-90X1 1/2		10		
	90X2"	WS-SB-90X2		10		
	110X1/2"	WS-SB-110X1/2		10		
	110X3/4"	WS-SB-110X3/4		10		
	110X1"	WS-SB-110X1		10		
	110X1 1/4"	WS-SB-110X1 1/4		10		
	110X1 1/2"	WS-SB-110X1 1/2		10		
	110X2"	WS-SB-110X2		10		
	110X3"	WS-SB-110X3		10		

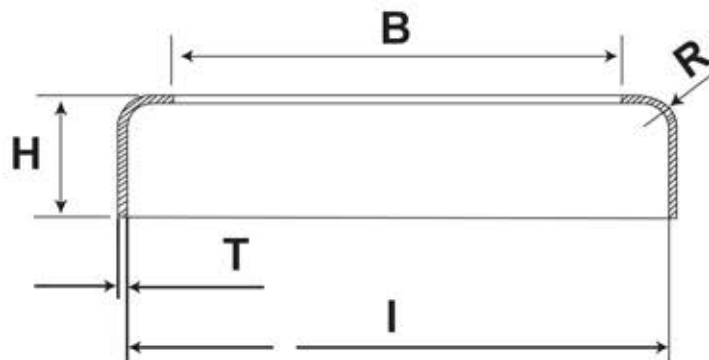


Blue Saddle

DESCRIPTION	Code	Quantity per Carton
المرابط الزرقاء Blue Saddle 16 BAR WS-140-BS  	WS-140-BS-110X3/4	16 PCS
	WS-140-BS-110X1	16 PCS
	WS-140-BS-110X1 1/4	16 PCS
	WS-140-BS-110X2	14 PCS
	WS-140-BS-160X3/4	6 PCS
	WS-140-BS-160X1	6 PCS
	WS-140-BS-160X1 1/4	6 PCS
	WS-140-BS-160X1 1/2	6 PCS
	WS-140-BS-160X2	6 PCS
	WS-140-BS-200X2	6 PCS

CLAMP SADDLES

S.S. RING FOR SUPER & PRO CLAMP SADDLE



SS RING

For BSP Thread Size	B mm	I mm	T mm	H mm	R mm
1/2	22	28	0.5	6.6	2
3/4	28.2	34	0.5	8.6	2
1	34.2	42	0.5	7.5	2
1 1/4	43	52	0.5	10.2	2
1 1/2	48	58	0.5	12.2	2
2	62	72	0.5	12	2
3	92	102	0.5	12.2	2
4	118	128	0.5	13.5	2

Tools for Saddle Bolt & Nut

أداة فك و ربط مسامير المرباط

Features and Specification

8mm socket with
Epoxy - Electrostatic
paint coated Steel handle

Used to Fasten Saddle
Bolt and nuts



Item Code No.	Description
WSK - TS 13	TOOLS FOR SADDLE BOLT & NUT (8mm)



WE COUNT EVERY DROP.



PP THREADED FITTINGS

TECHNICAL FEATURES

AlWasail Poly thread fittings are made from tough engineering materials. These are suitable for drinking water systems, any kinds of irrigation systems and other applications. Al-Wassel has included in its production-line a wide range of threaded fittings.

Materials	: Black Polypropylene
Connection	: BSP thread
Working Pressure	: 6 Bar

Where it is necessary to join AlWasail polyethylene pipe to another type of pipe using a threaded joints. AlWasail recommend the following guidelines.

- * Wherever possible make the connection with the polyethylene pipe as the male component of the joint
- * Use only P.T.F.E. tape as sealant
- * Tighten to firm hand tightness only using starap wrenches. Do not use serrated jaw wrenches.
- * A full range of adaptors is available to connect Al-Wassel polyethylene pipe to other materials pipes.

Packing : Standard Carton Box Size

CODE	TYPE	L CM	B CM	H CM	VOLUME M ³
S	Small	40	30	30	0.036
M	Medium	60	40	25	0.06
L	Large	60	50	40	0.12

Fields of Applications :

PP Threaded fittings are widely used polyethylene branch lines in

- * Any kinds of Irrigation Systems.
- * Potable water distribution
- * Industrial equipments for acids basis fertilizing, chemical, water treatment plants, Sea water applications, Pools, anti-fire mains, protection of cable system etc.,

Food regulation :

Materials are complies with recommendations and statutory regulations in the USA and most european countries regarding materials intended to come in contact with food stuff.

Certifications :

AlWasail PP Threaded fittings have been approved by TUV CERT ISO 9002 Certification body of RW TUV Gmph.

THREADED FITTINGS

Nipple

نيل



Description	Nom. Dia Inch x Inch	Code	Quantity Per Carton	Weight Kgs
Male x Male	1/2" x 1/2"	WS-N1212	1250	8.40
	3/4" x 3/4"	WS-N3434	800	8.95
	1" x 1"	WS-N1010	500	8.30
	1 1/2" x 1 1/2"	WS-N1515	200	7.90
	2" x 2"	WS-N2020	100	7.55
	3" x 3"	WS-N3030	40	6.85
	4" x 4"	WS-N4040	20	6.00

Reducing Nipple

نيل ناقص



Description	Nom. Dia Inch x Inch	Code	Quantity Per Carton	Weight Kgs
Male x Male	3/4" x 1/2"	WS-NR3412	850	9.10
	1" x 1/2"	WS-NR1012	500	11.20
	1" x 3/4"	WS-NR1034	500	12.50
	1 1/2" x 1"	WS-NR1510	250	10.25
	2" x 1/2"	WS-NR2015	120	12.75
	3" x 2"	WS-NR3020	60	8.50
	4" x 3"	WS-NR4030	30	8.10

Reducing Bush

نقاص سنة



Description	Nom. Dia Inch x Inch	Code	Quantity Per Carton	Weight Kgs
Male x Female	3/4" x 1/2"	WS-SMF3412	900	3.60
	1" x 1/2"	WS-SMF1012	800	8.22
	1" x 3/4"	WS-SMF1034	800	7.82
	1 1/2" x 1/2"	WS-SMF1512	225	8.40
	1 1/2" x 3/4"	WS-SMF1534	225	9.00
	1 1/2" x 1"	WS-SMF1510	225	8.34
	2" x 1/2"	WS-SMF2012	180	10.85
	2" x 3/4"	WS-SMF2034	180	10.80
	2" x 1"	WS-SMF2010	180	
	2" x 1 1/2"	WS-SMF2015	180	8.80
	3" x 1"	WS-SMF3010	70	8.10
	3" x 1 1/2"	WS-SMF3015	70	8.00
	3" x 2"	WS-SMF3020	70	8.75
	4" x 2"	WS-SMF4020	40	
	4" x 3"	WS-SMF4030	40	8.22

Coupling/Socket (Short)

جلبية



Description	Nom. Dia Inch x Inch	Code	Quantity Per Carton	Weight Kgs
Female x Female	1/2" x 1/2"	WS-SFF12	750	3.80
	3/4" x 3/4"	WS-SFF34	425	8.72
	1" x 1"	WS-SFF10	300	9.60
	1 1/2" x 1 1/2"	WS-SFF15	150	9.25
	2" x 2"	WS-SFF20	80	10.25
	3" x 3"	WS-SFF30	30	7.45
	4" x 4"	WS-SFF40	12	5.35

Reducing Socket

جلبية ناقص



Description	Nom. Dia Inch x Inch	Code	Quantity Per Carton	Weight Kgs
Female x Female	3/4" x 1/2"	WS-SRFF3412	425	11.10
	1" x 1/2"	WS-SRFF1012	350	10.10
	1" x 3/4"	WS-SRFF1034	300	11.25
	1 1/2" x 1"	WS-SRFF1510	160	8.80
	2" x 1 1/2"	WS-SRFF2015	80	8.45
	3" x 1 1/2"	WS-SRFF3015	45	9.10
	3" x 2"	WS-SRFF3020	45	9.20
	4" x 2"	WS-SRFF4020	24	9.75
	4" x 3"	WS-SRFF4030	24	9.75

Reducing Nipple Socket

جلبية نيل ناقص



Description	Nom. Dia Inch x Inch	Code	Quantity Per Carton	Weight Kgs
Female x Male	3/4" x 1/2"	WS-SRFM3412	425	11.10
	1" x 1/2"	WS-SRFM1012	350	10.10
	1" x 3/4"	WS-SRFM1034	300	11.25
	1 1/2" x 1"	WS-SRFM1510	160	8.80
	2" x 1 1/2"	WS-SRFM2015	80	8.45
	3" x 1 1/2"	WS-SRFM3015	45	9.10
	3" x 2"	WS-SRFM3020	45	9.20
	4" x 2"	WS-SRFM4020	24	9.75
	4" x 3"	WS-SRFM4030	24	9.75

End Plug

سدة سن خارجي



Description	Nom. Dia Inch	Code	Quantity Per Carton	Weight Kgs
Male Threaded	1/2"	WS-TM12	2000	9.95
	3/4"	WS-TM34	1300	10.10
	1"	WS-TM10	750	10.30
	1 1/2"	WS-TM15	300	9.10
	2"	WS-TM20	160	9.00
	3"	WS-TM30	70	8.70
	4"	WS-TM40	40	9.64

Coupling/Socket (Long)

جلبية



Description	Nom. Dia Inch x Inch	Code	Quantity Per Carton	Weight Kgs
Female x Female	1/2" x 1/2"	WS-SFF12L	450	8.10
	3/4" x 3/4"	WS-SFF34L	350	9.10

THREADED FITTINGS

End Cap

سدة سن داخلي



Description	Nom. Dia Inch	Code	Quantity Per Carton	Weight Kgs
Female Threaded	3"	WS-TF30	70	8.70
	4"	WS-TF40	40	9.64

Elbow

كوع سنة داخلي



Description	Nom. Dia Inch	Code	Quantity Per Carton	Weight Kgs
Female x Female	1/2"	WS-ETF12	500	11.90
	3/4"	WS-ETF34	325	10.70
	1"	WS-ETF10	200	10.60
	1 1/2"	WS-ETF15	70	7.64
	2"	WS-ETF20	35	7.48
	3"	WS-ETF30	40	27.26
	4"	WS-ETF40	20	21.72

Tee

كوع سنة داخلي



Description	Nom. Dia Inch	Code	Quantity Per Carton	Weight Kgs
Female x Female x Female Line x Branch x Line	1/2"	WS-TTF12	300	10.20
	3/4"	WS-TTF34	225	11.70
	1"	WS-TTF10	120	9.80
	1 1/2"	WS-TTF15	50	7.25
	2"	WS-TTF20	30	8.20
	3"	WS-TTF30	16	14.70
	4"	WS-TTF40	8	10.90

Elbow

كوع سنة خارجية



Description	Nom. Dia Inch	Code	Quantity Per Carton	Weight Kgs
Male x Male	1/2"	WS-ETM12	500	10.60
	3/4"	WS-ETM34	325	10.70
	1"	WS-ETM10	200	10.60
	1 1/2"	WS-ETM15	70	7.64
	2"	WS-ETM20	35	7.48
	3"	WS-ETM30	40	27.26
	4"	WS-ETM40	20	21.72

Tee

كوع تقاص سنة خارجي



Description	Nom. Dia Inch	Code	Quantity Per Carton	Weight Kgs
Female x Male x Female Line x Branch x Line	1/2"	WS-TTFMF12	300	10.20
	3/4"	WS-TTFMF34	225	11.70
	1"	WS-TTFMF10	120	9.80
	1 1/2"	WS-TTFMF15	50	7.25
	2"	WS-TTFMF20	30	8.20
	3"	WS-TTFMF30	16	14.70
	4"	WS-TTFMF40	8	10.90

Elbow

قسام سن داخلي وخارجي



Description	Nom. Dia Inch	Code	Quantity Per Carton	Weight Kgs
Male x Male	1/2"	WS-ETFM12	500	10.60
	3/4"	WS-ETFM34	325	10.70
	1"	WS-ETFM10	200	10.60
	1 1/2"	WS-ETFM15	70	7.64
	2"	WS-ETFM20	35	7.48
	3"	WS-ETFM30	40	27.26
	4"	WS-ETFM40	20	21.72

Tee

كوع سن خارجي



Description	Nom. Dia Inch	Code	Quantity Per Carton	Weight Kgs
Male x Male x Male Line x Line x Line	1/2"	WS-TTM12	300	10.20
	3/4"	WS-TTM34	225	11.70
	1"	WS-TTM10	120	9.80
	1 1/2"	WS-TTM15	50	7.25
	2"	WS-TTM20	30	8.20
	3"	WS-TTM30	16	14.70
	4"	WS-TTM40	8	10.90

Tank Adaptor

بداية خزان



Description	Nom. Dia Inch	Code	Quantity Per Carton	Weight Kgs
Color : White Color Material : (ABS) Thread : BSP	1"	WS-TA-1080	100	10.1
	2"	WS-TA-2080	50	7.5
	3"	WS-TA-3080	25	8.9



WE COUNT EVERY DROP.



TURF FITTINGS

GOLF SWING JOINTS

ذراع مرن لتوصيل رشاشات الجولف

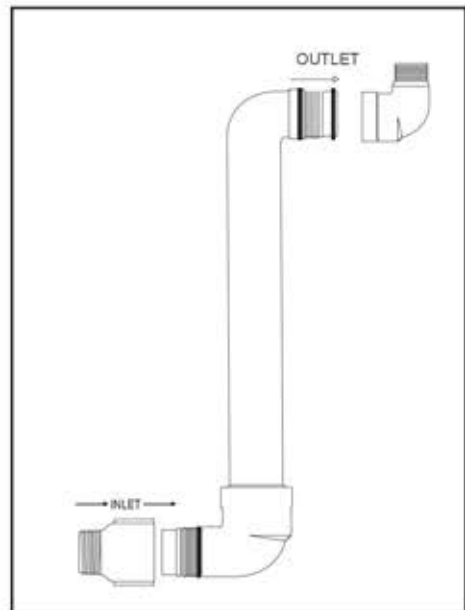


Applications :

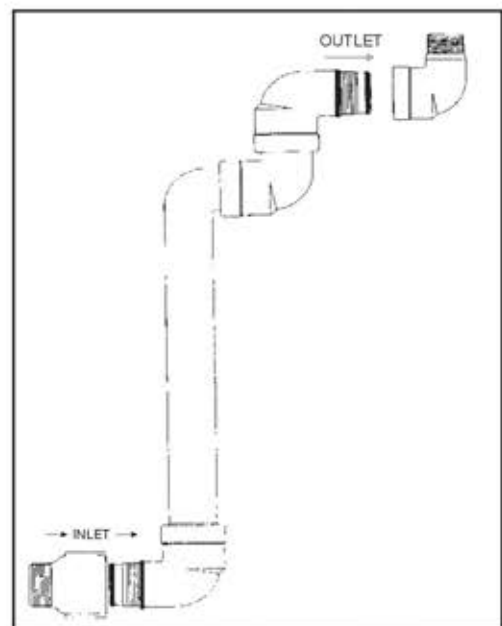
- * Ideal for use in large irrigation project such as Golf course, Sports field, Turf and landscape applications.
- * Excellent for use under sprinkler heads anywhere a high quality installation is required.
- * Suitable for valve-in-head application.

Features & Specification :

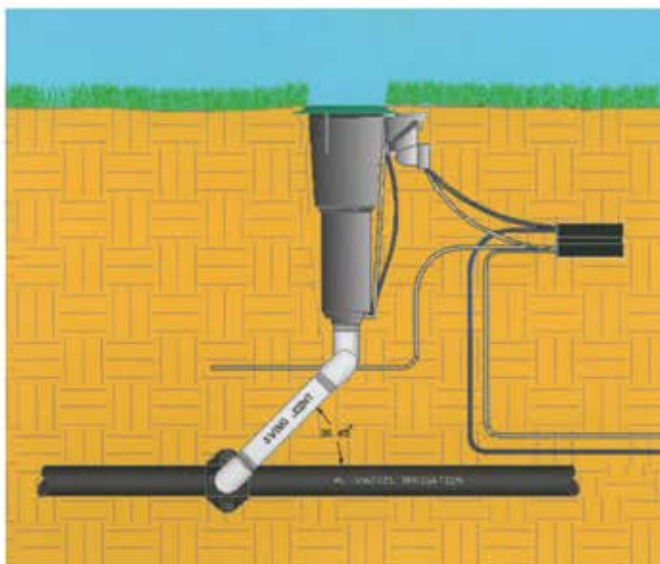
- * Manufactured from ABS Virgin raw Material.
- * ACME thread & 'O' ring seals used to eliminate expansive call - backs of leaking joints
- * Pre Assembled to lay length shown below.
- * Operating pressure : 315 Psi at 73° F (20° C).
- * Leak proof 'O' ring seated in sealing grooves free of parting lines.
- * Can be used on bottom or side inlet sprinklers and quick coupler valves.
- * Reliable ACME threads allow freedom of movement while maintaining joint integrity.
- * Available on BSP, NPT and ACME Thread.
- * 360 Rotation in 3 and 5 direction assembly complete.



3 Direction



5 Direction



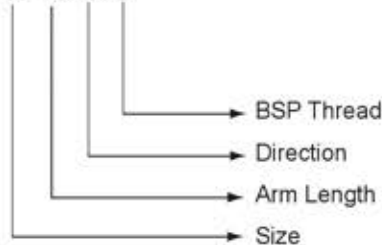
GOLF SWING JOINTS

ذراع مرن لتوصيل رشاشات الجولف



Description	Nom. Size			Code	Quantity Per Carton	Weight Kgs
	Dia Inch	Arm Length Inch	Direction No.			
Golf Swing Joint WS-GSJ Material : ABS Execution : Injection Moulded O' Ring : SBR Thread : ACME, NPT & BSP Color : White 						
	1"	6"	3	WS-GSJ-10-6-3	25	7.10
	1"	6"	5	WS-GSJ-10-6-5	14	8.90
	1"	12"	3	WS-GSJ-10-12-3	25	8.50
	1"	12"	5	WS-GSJ-10-12-5	14	8.70
	1.1/4"	6"	3	WS-GSJ-12-6-3	20	7.75
	1.1/4"	6"	5	WS-GSJ-12-6-5	10	8.10
	1.1/4"	12"	3	WS-GSJ-12-12-3	20	7.20
	1.1/4"	12"	5	WS-GSJ-12-12-5	10	8.90
	1.1/2"	6"	3	WS-GSJ-15-6-3	10	7.10
	1.1/2"	6"	5	WS-GSJ-15-6-5	08	6.90
	1.1/2"	12"	3	WS-GSJ-15-12-3	10	7.10
	1.1/2"	12"	5	WS-GSJ-15-12-5	08	7.05
						8.20

Eg : WS-GSJ - 10 - 6- 3 -B

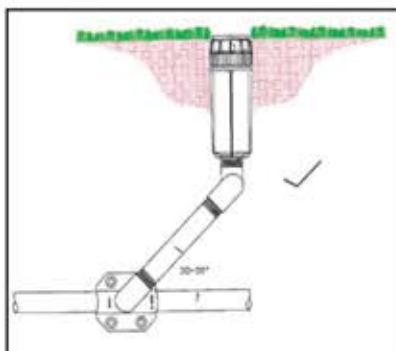


Please Specify :

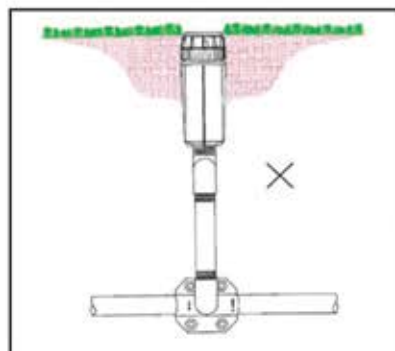
B - BSP Thread
 N - NPT Thread
 A - ACME Thread

GOLF SWING JOINT RISER ASSEMBLIES

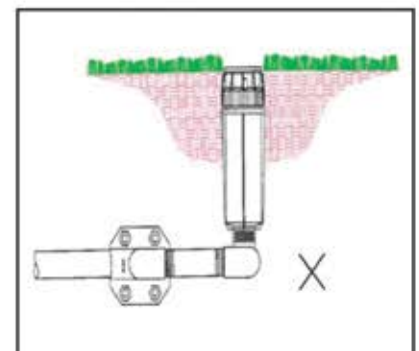
INSTALLATION INSTRUCTION



RIGHT



WRONG



WRONG

GOLF SWING JOINT RISER ASSEMBLIES SHOULD NOT BE INSTALLED PERPENDICULAR OR PARALLEL TO THE SUPPLY LINE

PRE- ASSEMBLED SWING JOINT

Applications :

Ideal for installing sprinklers and Bubblers in tight quarters. Simplifies installing a swing joint.

Features :

These pre-assembled swing joint risers provide maximum flexibility and protection for sprinkler heads with less cost. Allows Sprinkler height and angle to be adjusted. Flexible design adds protection to lateral pipe against damage. Retrofit models adds extra inlet elbow to retrofit riser on either horizontal or vertical elbow.



Specifications :

Material	: Polyethylene
Thread	: BSP male
Available in sizes	: 1/2" and 3/4" dia - 300mm & 500mm Height
Operating Pressure	: 5 Bar.

Unique Swing Joint



Description	Nom. Size Inch x Inch - Height	Code	Quantity Per Carton	Weight Kgs
male x male-Height Inch x Inch - mm	1/2" x 1/2" - 150	WS-USJ12-150	150	6.70
	1/2" x 1/2" - 300	WS-USJ12-300	90	5.70
	3/4" x 3/4" - 150	WS-USJ34-150	125	5.74
	3/4" x 3/4" - 300	WS-USJ34-300	90	5.43
	3/4" x 1/2" - 150	WS-USJ-3412-150	125	5.43
	3/4" x 1/2" - 300	WS-USJ-3412-300	90	6.24

POLYPROPYLENE - MARLEX SWING JOINT

Applications :

Suitable for Turf and landscape Applications. Ideal for connecting sprinklers and bubblers etc., Easy to adjust height and angle.

Specifications :

Material	: Polyethylene
Thread	: BSP male
Available in sizes	: 1/2" , 3/4" & 1" dia - 200mm Height
Operating Pressure	: 5 Bar.

MARLEX SWING JOINT



Description	Nom. Size Inch x Inch - mm	Code	Quantity Per Carton	Weight Kgs
BSP X BSP male x male-Height Inch x Inch - mm	1/2" x 1/2" - 150	WS-SJ12-150	80	7.20
	1/2" x 1/2" - 200	WS-SJ12-200	70	6.90
	1/2" x 1/2" - 250	WS-SJ12-250	50	7.10
	1/2" x 1/2" - 300	WS-SJ12-300	30	6.20
	1/2" x 1/2" - 400	WS-SJ12-400	20	6.10
	3/4" x 3/4" - 150	WS-SJ34-150	65	7.00
	3/4" x 3/4" - 200	WS-SJ34-200	55	5.85
	3/4" x 3/4" - 250	WS-SJ34-250	30	6.10
	3/4" x 3/4" - 300	WS-SJ34-300	25	7.00
	3/4" x 3/4" - 400	WS-SJ34-400	20	5.10
	1" x 1" - 150	WS-SJ10-150	45	7.00
	1" x 1" - 200	WS-SJ10-200	35	6.28
	1" x 1" - 250	WS-SJ10-250	25	5.10
	1" x 1" - 300	WS-SJ10-300	25	5.40
	1" x 1" - 400	WS-SJ10-400	20	6.10

MARLEX ELBOWS

كوع سنة داخلي وخارجي



Description	Nom. Size Inch x Inch	Code	Quantity Per Carton	Weight Kgs
BSP MALE X BSP FEMALE INCH X INCH	1/2" x 1/2"	WS-EG12FM	700	10.28
	3/4" x 3/4"	WS-EG34FM	400	9.00
	1" x 1"	WS-EG10FM	200	8.50
PP Rigid Riser / Pipe Nipple				

SWING PIPE AND FITTINGS

خراطيم مرنة لتوصيل رشاشات الحدائق

Al-Wasail SWING PIPE

Ideal for installing spray heads (especially in difficult conditions) because it is extremely flexible, easy to handle and to use.

Features :

- * Manufactured from linear low density Polyethylene
- * UV-resistant polyethylene resin materials
- * Highly flexible hose
- * Easy unwinds from center of coil
- * Shrink-wrapped coils
- * Connects to sprinkler and Alwassel fittings
- * Cushions sprinklers from external impact.
- * Min 2.5% (± 0.5%) carbon black added for resistance to U-V deterioration



Specifications :

Inside Diameter	: 12.5MM
Wall Thickness	: 2.2MM
Coil Length	: 30m, 50m
Pressure	: 5.5 bar. Max.

SWING PIPE



Description	Nom. Size	Code	Quantity Per Carton	Weight Kgs
WS-P5	12.5MM ID - 30M LENGTH	WS-P5-SWING-17-30		
	12.5MM ID - 50M LENGTH	WS-P5-SWING-17-50		

SPIRAL BARB FITTINGS FOR SWING PIPE

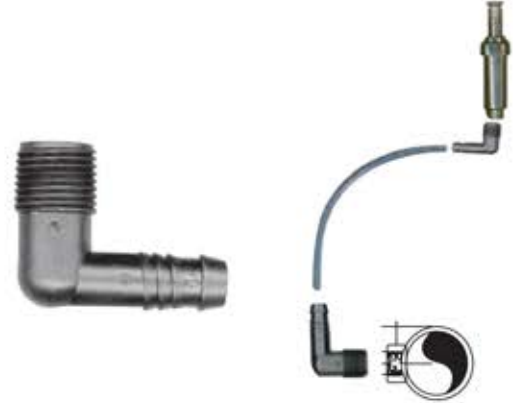
وصلات الخراطيم المرنة لتوصيل رشاشات الحدائق

Applications :

Used with Swing Pipe and other thick walled 12.5mm I.D Tubing as a flexible swing joint assembly for sprinkler systems.

Features & Specifications :

- * Self Threading Barb
- * Spiral design permits twist in insertion.
- * Easier to install
- * Made of UV-Resistant thermoplastic materials
- * Eliminate the need for glue or clamps
- * BSP Thread



Spiral Male Adaptor بداية سنة خارجي



Description	Nom. Dia mm x Inch	Code	Quantity Per Carton	Weight Kgs
Tail to BSP male mm x Inch	13 x 1/2"	WS-SP-D1212	1300	5.90
	13 x 3/4"	WS-SP-D1234	900	8.40

Spiral Pipe Joiner وصلة كبس



Description	Nom. Dia mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Line mm x mm	13 x 13	WS-SP-12HJ	2200	6.48

Spiral Male Elbow كوع كبس سنة خارجي



Description	Nom. Dia mm x Inch	Code	Quantity Per Carton	Weight Kgs
Tail to BSP male mm x Inch	13 x 1/2"	WS-SP-E12G12M	1200	7.40
	13 x 3/4"	WS-SP-E12G34M	1000	7.40

Spiral Tee كوع كبس



Description	Nom. Dia mm x mm x mm	Code	Quantity Per Carton	Weight Kgs
Line x Line x Line mm x mm x mm	13 x 13 x 13	WS-SP-T12	800	6.00

POLYETHYLENE CUT OFF RISERS

Al-wassel cut off Risers moulded from tough but flexible polyethylene, each riser feature molded-in Hex flats for tightening. Al-wassel cut off Risers for use with pop-up sprinkler and Bubblers. Simply screw in to the elbow and cut off at the height desired. Full BSP standard male thread.

Flexible cut off risers



Description	Nom. Dia Inch x mm	Code	Quantity Per Carton	Weight Kgs
BSP male - Height Inch x mm	1/2" - 200	WS-CR 12	425	8.45
	3/4" - 300	WS-CR 34	300	10.04

Universal cut off risers



Description	Nom. Dia Inch x Inch	Code	Quantity Per Carton	Weight Kgs
BSP male x BSP male Inch x Inch	3/4" x 1/2"	WS-UCC 12	600	11.40

Telescopic cut off risers



Description	Nom. Dia Inch x Inch x mm	Code	Quantity Per Carton	Weight Kgs
BSP male x BSP male - Height Inch x Inch x mm	3/4" x 1/2" - 200	WS-CR 3412	300	8.40

POLYPROPYLENE RIGID RISER

- * Moulded , black polypropylene material.
- * Tapered inside ends allows standard pop-up heads to slide up and down without restriction.
- * BSP male thread on both sides.

PP RIGID RISER

رايزر

Molded/Injected



Description	Nom. Size Inch x Inch - mm	Code	Quantity Per Carton	Weight Kgs
BSP male x BSP male - Height Inch x Inch - mm	1/2" x 1/2" - 150	WS-RR12-150	400	11.10
	1/2" x 1/2" - 200	WS-RR12-200	400	12.10
	1/2" x 1/2" - 250	WS-RR12-250	350	10.70
	1/2" x 1/2" - 300	WS-RR12-300	500	18.00 (M)
	1/2" x 1/2" - 450	WS-RR12-450	250	13.70 (M)
	1/2" x 1/2" - 600	WS-RR12-600	240	(M)
	3/4" x 3/4" - 150	WS-RR34-150	300	10.10
	3/4" x 3/4" - 200	WS-RR34-200	275	(S)
	3/4" x 3/4" - 250	WS-RR34-250	200	8.25 (S)
	3/4" x 3/4" - 300	WS-RR34-300	300	14.20 (M)
	3/4" x 3/4" - 450	WS-RR34-450	150	12.35 (M)
	3/4" x 3/4" - 600	WS-RR34-600	150	16.80 (M)
	1" x 1" - 150	WS-RR10-150	250	7.80
	1" x 1" - 200	WS-RR10-200	150	6.60 (S)
	1" x 1" - 250	WS-RR10-250	150	7.10
	1" x 1" - 300	WS-RR10-300	190	6.10 (M)
	1" x 1" - 450	WS-RR10-450	120	8.20
	1" x 1" - 600	WS-RR10-600	95	15.45 (M)

POLYETHYLENE RIGID RISER

قوائم (رايزر) بولي اثيلين مسننة

- * Extruded , black polyethylene material.
- * Tapered inside ends allows standard pop-up heads to slide up and down without restriction.
- * BSP male thread on both sides.
- * Available sizes 1/2", 3/4", 1" , 1 1/2" & 2" dia

Polyethylene RIGID RISER

Description	Nom. Size Inch x Inch - mm	Code	Quantity Per Carton	Weight Kgs
Polyethylene RIGID RISER BSP male x BSP male - Height Inch x mm	1/2" x 1/2" - 250	WS-PR-12-250		
	1/2" x 1/2" - 300	WS-PR-12-300		
	1/2" x 1/2" - 400	WS-PR-12-400		
	1/2" x 1/2" - 500	WS-PR-12-500		
	1/2" x 1/2" - 600	WS-PR-12-600		
	1/2" x 1/2" - 750	WS-PR-12-750		
	1/2" x 1/2" - 900	WS-PR-12-900		
	1/2" x 1/2" - 1000	WS-PR-12-1000		
	1/2" x 1/2" - 1200	WS-PR-12-1200		
	1/2" x 1/2" - 1500	WS-PR-12-1500		
	3/4" x 3/4" - 250	WS-PR-34-250		
	3/4" x 3/4" - 300	WS-PR-34-300		
	3/4" x 3/4" - 400	WS-PR-34-400		
	3/4" x 3/4" - 500	WS-PR-34-500		
	3/4" x 3/4" - 600	WS-PR-34-600		
	3/4" x 3/4" - 750	WS-PR-34-750		
	3/4" x 3/4" - 900	WS-PR-34-900		
	3/4" x 3/4" - 1000	WS-PR-34-1000		
	3/4" x 3/4" - 1200	WS-PR-34-1200		
	3/4" x 3/4" - 1500	WS-PR-34-1500		
	1" x 1" - 250	WS-PR-10-250		
	1" x 1" - 300	WS-PR-10-300		
	1" x 1" - 400	WS-PR-10-400		
	1" x 1" - 500	WS-PR-10-500		
	1" x 1" - 600	WS-PR-10-600		
	1" x 1" - 750	WS-PR-10-750		
	1" x 1" - 900	WS-PR-10-900		
	1" x 1" - 1000	WS-PR-10-1000		
	1" x 1" - 1200	WS-PR-10-1200		
	1" x 1" - 1500	WS-PR-10-1500		
	1 1/2" x 1 1/2" - 250	WS-PR-15-250		
	1 1/2" x 1 1/2" - 300	WS-PR-15-300		
	1 1/2" x 1 1/2" - 400	WS-PR-15-400		
	1 1/2" x 1 1/2" - 500	WS-PR-15-500		
	1 1/2" x 1 1/2" - 600	WS-PR-15-600		
	1 1/2" x 1 1/2" - 750	WS-PR-15-750		
	1 1/2" x 1 1/2" - 900	WS-PR-15-900		
	1 1/2" x 1 1/2" - 1000	WS-PR-15-1000		
	1 1/2" x 1 1/2" - 1200	WS-PR-15-1200		
	1 1/2" x 1 1/2" - 1500	WS-PR-15-1500		
	2" x 2" - 250	WS-PR-20-250		
	2" x 2" - 300	WS-PR-20-300		
	2" x 2" - 400	WS-PR-20-400		
	2" x 2" - 500	WS-PR-20-500		
	2" x 2" - 600	WS-PR-20-600		
	2" x 2" - 750	WS-PR-20-750		
	2" x 2" - 900	WS-PR-20-900		
	2" x 2" - 1000	WS-PR-20-1000		
	2" x 2" - 1200	WS-PR-20-1200		
	2" x 2" - 1500	WS-PR-20-1500		



POLYETHYLENE RIGID RISER

Polyethylene REDUCING RIGID RISER



Description	Nom. Size Inch x Inch - mm	Code	Quantity Per Carton	Weight Kgs
رايزر نقاص Male x Male Inch x Inch - mm				
	3/4" x 1/2" - 250	WS-PR-3412-250		
	3/4" x 1/2" - 300	WS-PR-3412-300		
	3/4" x 1/2" - 400	WS-PR-3412-400		
	3/4" x 1/2" - 500	WS-PR-3412-500		
	3/4" x 1/2" - 600	WS-PR-3412-600		
	3/4" x 1/2" - 750	WS-PR-3412-750		
	3/4" x 1/2" - 900	WS-PR-3412-900		
	3/4" x 1/2" - 1000	WS-PR-3412-1000		
	3/4" x 1/2" - 1200	WS-PR-3412-1200		
	3/4" x 1/2" - 1500	WS-PR-3412-1500		

MALE - FEMALE REDUCING RIGID RISER



Description	Nom. Size Inch x Inch - mm	Code	Quantity Per Carton	Weight Kgs
رايزر نقاص سنة خارجية - داخلية Male x Female				
	3/4" x 1/2" - 250	WS-PR-MF-3412-250		
	3/4" x 1/2" - 300	WS-PR-MF-3412-300		
	3/4" x 1/2" - 400	WS-PR-MF-3412-400		
	3/4" x 1/2" - 500	WS-PR-MF-3412-500		
	3/4" x 1/2" - 600	WS-PR-MF-3412-600		
	3/4" x 1/2" - 750	WS-PR-MF-3412-750		
	3/4" x 1/2" - 900	WS-PR-MF-3412-900		
	3/4" x 1/2" - 1000	WS-PR-MF-3412-1000		
	3/4" x 1/2" - 1200	WS-PR-MF-3412-1200		
	3/4" x 1/2" - 1500	WS-PR-MF-3412-1500		

Edg-Queen

Description:

Alwasail is the industry leader, and set the industry standard for quality. It has a plastic composition unmatched in the industry. Today, many landscapers, who are aware of lower priced alternatives, remain loyal to the consistency of Lawn edging performance.

Material:

Pure Polyethylene with 3.5- 4 % Carbon Black concentrate Added for Ultra Violet stabilization.

Height:

126.7mm (5")

Average Wall thickness:

2.5-3.4 mm (0.984 " to 0.134")

Length / Piece:

6m (20 ft)

Weight:

2.67 kg (5.87lbs) per piece - Appr.

Packaged:

5 piece x 20 ft of edging / flat bundle



Ordering Information

Item Code No.	Description
WS-EQ-LE-520	ALWASAIL EDG-QUEEN LAWN EDGING 5" Height X 20ft Length



WE COUNT EVERY DROP.



TURF & AGRICULTURE

SPRAY HEAD

رشاشات المسطحات الخضراء

Item Code : WSI - LN

Applications :

Probably the most widely used irrigation head; pop-ups are typically used for residential and small commercial sprinkler systems. Pop-up spray heads are designed to supply a continuous stream of water, and are fitted with a nozzle. There are nozzles in a variety of designs; each design is for a specific spray pattern, such as a full arc, a half-circle, or a quarter circle. Nozzles are used to distribute water in a variety of patterns to fit the contours of the landscape. Other than a pop-up stem, pop-up spray heads are stationary, and are inexpensive and simple to operate.

Pop-up spray heads are designed to cover relatively small areas with spray radii between 8 and 17 feet, and an operating pressure between 15 and 30 psi. The precipitation rate of fixed spray heads is dependent on system pressure, spray head spacing, manufacturer specs, and nozzle size, and varies from 1 to 2.5 inches per hour.

Features :

- Small exposed cover makes the unit virtually invisible for more attractive landscapes.
- Rugged cover and body provide durability in high pressure and surge conditions.
- Available in popular 2-inch and 4-inch models to provide unobstructed watering of today's taller turf grass varieties.
- VAN nozzle and screen are easily removable for flushing.
- New! Insert a coin in adjustment slot to easily set arc range from 0 – 360°.
- Color-coded for easy identification.
- Stainless steel radius adjustment screw.
- Screens and adjustment coin included with nozzles.
- Reusable, dual compartment resalable bags for organizing nozzles and strainers.

Specifications :

- Pressure: 20 to 40 psi (1,4 to 4,8 bar)
- Optimum Pressure: 30 psi (2 bar)
- Adjustable nozzle arc range: 0° - 360°
- Flow-by: 0 at 10 psi (0,75 bar) or greater; 0.20 GPM (0,04 m3/h; 0,01 l/s) otherwise



SPRAY HEAD

Specifications :

Adjustable arc nozzles standard											
Arc	Pressure	8A		10A		12A		15A		17A	
		Radius	Flow	Radius	Flow	Radius	Flow	Radius	Flow	Radius	Flow
Degrees	psi	ft	gpm	ft	gpm	ft	gpm	ft	gpm	ft	gpm
45° 	20	8	0.57	10	0.59	12	0.5	15	0.51	16	0.41
	25	8	0.62	10	0.66	12	0.61	15	0.62	16	0.48
	30	8	0.68	10	0.74	12	0.64	15	0.72	16	0.53
	35	9	0.72	11	0.8	13	0.71	16	0.76	17	0.57
	40	9	0.78	11	0.86	13	0.72	16	0.79	17	0.61
90° 	20	8	0.82	10	0.93	12	0.75	15	0.82	16	0.84
	25	8	0.88	10	1	12	0.93	15	0.93	16	0.95
	30	8	0.97	10	1.11	12	1	15	1.04	16	1.03
	35	9	1.03	11	1.19	13	1.1	16	1.1	17	1.08
	40	9	1.13	11	1.27	13	1.16	16	1.2	17	1.14
120° 	20	8	0.9	10	1.1	12	0.87	15	1.1	16	1.02
	25	8	1.15	10	1.31	12	1.04	15	1.21	16	1.09
	30	8	1.25	10	1.41	12	1.13	15	1.33	16	1.19
	35	9	1.35	11	1.5	13	1.22	16	1.44	17	1.24
	40	9	1.41	11	1.6	13	1.32	16	1.5	17	1.34
180° 	20	8	1.35	10	1.45	12	1.21	15	1.42	16	1.36
	25	8	1.47	10	1.61	12	1.28	15	1.65	16	1.53
	30	8	1.61	10	1.78	12	1.59	15	1.75	16	1.68
	35	9	1.74	11	1.87	13	1.73	16	1.89	16	1.82
	40	9	1.83	11	2.02	13	1.87	16	2.06	16	1.95
240° 	20	8	1.73	10	1.9	12	1.46	15	1.55	16	1.62
	25	8	1.97	10	2.12	12	1.63	15	1.75	16	1.83
	30	8	2.2	10	2.3	12	1.8	15	1.91	16	2.04
	35	9	2.4	11	2.52	13	1.94	16	2.04	16	2.22
	40	9	2.56	11	2.67	13	2.14	16	2.15	16	2.37
270° 	20	8	1.87	10	2	12	1.54	15	2.02	16	1.96
	25	8	2.1	10	2.26	12	1.73	15	2.32	16	2.21
	30	8	2.26	10	2.47	12	1.93	15	2.51	16	2.47
	35	9	2.4	11	2.7	13	2.11	16	2.74	16	2.64
	40	9	2.63	11	2.98	13	2.3	16	2.97	16	2.8
360° 	20	8	2.21	10	2.31	12	1.67	15	2.38	16	2.53
	25	8	2.52	10	2.61	12	1.89	15	2.66	16	2.86
	30	8	2.84	10	2.87	12	2.11	15	2.96	16	3.3
	35	9	2.99	11	3.13	13	2.27	16	3.26	16	3.43
	40	9	3.2	11	3.37	13	2.44	16	3.46	16	3.83

Adjustable arc nozzles metric											
Arc	Pressure	8A		10A		12A		15A		17A	
		Radius	Flow	Radius	Flow	Radius	Flow	Radius	Flow	Radius	Flow
Degrees	bar	m	m³/hr	m	m³/hr	m	m³/hr	m	m³/hr	m	m³/hr
45° 	1.38	2.4	0.13	3.0	0.13	3.7	0.11	4.6	0.12	4.9	0.09
	1.72	2.4	0.14	3.0	0.15	3.7	0.14	4.6	0.14	4.9	0.11
	2.07	2.4	0.15	3.0	0.17	3.7	0.15	4.6	0.16	4.9	0.12
	2.41	2.7	0.16	3.4	0.18	4.0	0.16	4.9	0.17	5.2	0.13
	2.76	2.7	0.18	3.4	0.20	4.0	0.16	4.9	0.18	5.2	0.14
90° 	1.38	2.4	0.19	3.0	0.21	3.7	0.17	4.6	0.19	4.9	0.19
	1.72	2.4	0.20	3.0	0.23	3.7	0.21	4.6	0.21	4.9	0.22
	2.07	2.4	0.22	3.0	0.25	3.7	0.23	4.6	0.24	4.9	0.23
	2.41	2.7	0.23	3.4	0.27	4.0	0.25	4.9	0.25	5.2	0.25
	2.76	2.7	0.26	3.4	0.29	4.0	0.26	4.9	0.27	5.2	0.26
120° 	1.38	2.4	0.20	3.0	0.25	3.7	0.20	4.6	0.25	4.9	0.23
	1.72	2.4	0.26	3.0	0.30	3.7	0.24	4.6	0.27	4.9	0.25
	2.07	2.4	0.28	3.0	0.32	3.7	0.26	4.6	0.30	4.9	0.27
	2.41	2.7	0.31	3.4	0.34	4.0	0.28	4.9	0.33	5.2	0.28
	2.76	2.7	0.32	3.4	0.36	4.0	0.30	4.9	0.34	5.2	0.30
180° 	1.38	2.4	0.31	3.0	0.33	3.7	0.28	4.6	0.32	4.9	0.31
	1.72	2.4	0.33	3.0	0.37	3.7	0.29	4.6	0.37	4.9	0.35
	2.07	2.4	0.37	3.0	0.40	3.7	0.36	4.6	0.40	4.9	0.38
	2.41	2.7	0.40	3.4	0.42	4.0	0.39	4.9	0.43	4.9	0.41
	2.76	2.7	0.42	3.4	0.46	4.0	0.42	4.9	0.47	4.9	0.44
240° 	1.38	2.4	0.39	3.0	0.43	3.7	0.33	4.6	0.35	4.9	0.37
	1.72	2.4	0.45	3.0	0.48	3.7	0.37	4.6	0.40	4.9	0.42
	2.07	2.4	0.50	3.0	0.52	3.7	0.41	4.6	0.43	4.9	0.46
	2.41	2.7	0.55	3.4	0.57	4.0	0.44	4.9	0.46	4.9	0.50
	2.76	2.7	0.58	3.4	0.61	4.0	0.49	4.9	0.49	4.9	0.54
270° 	1.38	2.4	0.42	3.0	0.45	3.7	0.35	4.6	0.46	4.9	0.45
	1.72	2.4	0.48	3.0	0.51	3.7	0.39	4.6	0.53	4.9	0.50
	2.07	2.4	0.51	3.0	0.56	3.7	0.44	4.6	0.57	4.9	0.56
	2.41	2.7	0.55	3.4	0.61	4.0	0.48	4.9	0.62	4.9	0.60
	2.76	2.7	0.60	3.4	0.68	4.0	0.52	4.9	0.67	4.9	0.64
360° 	1.38	2.4	0.50	3.0	0.52	3.7	0.38	4.6	0.54	4.9	0.57
	1.72	2.4	0.57	3.0	0.59	3.7	0.43	4.6	0.60	4.9	0.65
	2.07	2.4	0.65	3.0	0.65	3.7	0.48	4.6	0.67	4.9	0.75
	2.41	2.7	0.68	3.4	0.71	4.0	0.52	4.9	0.74	4.9	0.78
	2.76	2.7	0.73	3.4	0.77	4.0	0.55	4.9	0.79	4.9	0.87

ROTOR

Item Code : WSIR75

Application : Residential / Light Commercial

Spacing : 25' - 45

WSIR45™ :

The WSIR45™ gear drive is designed for basic residential and light commercial applications and is a direct replacement for Hunter® PGP® rotors. The reversing mechanism, a Alwasail patented feature, is the same mechanism used in the Hunter® PGP. With alwasail's wide selection of standard and low angle nozzles, the WSIR45 provides even water distribution.

Features/benefits :

- Direct replacement for Hunter® PGP®.
- Right Position Start-Rotor rotates counterclockwise from fixed right start position.
- Riser fits in existing Hunter® PGP® cans-simply unscrew the existing riser from the PGP® can and replace with the WSIR45 riser.
- Top adjustment-no training necessary, theWSIR45 the same adjustment procedure as the Hunter® PGP®.
- Full and Part circle rotation-provides a full range of adjustment from 40° to 360°.
- Non-flushing wiper seal-reduces leaks caused by debris trapped under seal.
- 3/4" Inlet-Replaces all standard rotors.
- Ideal for low flow applications.
- Universal adjustment tool-compatible with existing Hunter® products.
- Rubber Cover-Seals out dirt and increases product durability.
- Wide Selection of Nozzles-Including standard and low angle, provides flexibility in system design.
- Five Year Limited Warranty.

Specifications :

- Inlet: 3/4" Threaded NPT
- Arc Adjustment Range: 40° to 360°
- Flow Range: .75 - 8.2 GPM
- Pressure Rating: 30 - 70 PSI
- Precipitation Rate: .12 to 1.16 Inches Per Hour
- Overall Height (Popped Down): 7 3/8"
- Recommended Spacing: 25' to 45'
- Radius: 22' to 51'
- Nozzle Trajectory: 25°
- Low Angle Nozzle Trajectory: 11°
- 8 Standard and 4 Low Angle Nozzles Included
- Riser Height: 4"



ROTOR

PERFORMANCE			
NOZZLE	PRESSURE PSI	RADIUS FT.	FLOW GPM
#0.75	30	29'	.7
	40	30'	.8
	50	30'	.9
	60	31'	1.0
#1	30	30'	0.9
	40	31'	1.0
	50	31'	1.2
	60	32'	1.3
#1.5	30	32'	1.2
	40	33'	1.4
	50	34'	1.6
	60	34'	1.8
#2	30	34'	1.6
	40	36'	1.8
	50	38'	2.0
	60	38'	2.2
#3 PRE-INSTALLED	30	36'	2.0
	40	38'	2.4
	50	40'	2.7
	60	40'	2.9
#4	30	36'	2.6
	40	40'	3.0
	50	42'	3.4
	60	42'	3.7
#6	40	38'	4.2
	50	43'	4.9
	60	46'	5.5
	70	47'	6.0
#8	40	45'	6.0
	50	48'	6.8
	60	49'	7.6
	70	51'	8.2

METRIC					
NOZZLE	PRESSURE		RADIUS	FLOW RATE	
	kPa	BARS	METERS	L/M	M ³ /H
#0.75	206	2.1	8.8	2.6	.16
	275	2.8	9.1	3.0	.18
	344	3.4	9.1	3.4	.20
	413	4.1	9.4	3.8	.23
	206	2.1	9.1	3.4	.20
#1	275	2.8	9.4	3.8	.23
	344	3.4	9.4	4.5	.27
	413	4.1	9.8	4.9	.30
	206	2.1	9.8	4.5	.27
	275	2.8	10.1	5.3	.32
#1.5	344	3.4	10.4	6.1	.36
	413	4.1	10.4	6.8	.41
	206	2.1	10.4	6.1	.36
	275	2.8	11.0	6.8	.41
	344	3.4	11.6	7.6	.45
#2	413	4.1	11.6	8.3	.50
	206	2.1	11.0	7.6	.45
	275	2.8	11.6	9.1	.55
	344	3.4	12.2	10.2	.61
	413	4.1	12.2	11.0	.66
#3 PRE-INSTALLED	206	2.1	11.0	9.8	.59
	275	2.8	12.2	11.4	.68
	344	3.4	12.8	12.9	.77
	413	4.1	12.8	14.0	.84
	206	2.1	11.6	15.9	.91
#4	275	2.8	13.1	18.5	1.11
	344	3.4	14.0	20.8	1.25
	413	4.1	14.3	22.7	1.36
	275	2.8	13.7	22.7	1.36
	344	3.4	14.6	25.7	1.54
#6	413	4.1	14.9	28.8	1.73
	482	4.8	15.5	31.0	1.86

LOW ANGLE DATA			
NOZZLE	PRESSURE PSI	RADIUS FT.	FLOW GPM
#1	30	22'	1.2
	40	24'	1.7
	50	26'	1.8
	60	28'	2.0
#3	30	29'	3.0
	40	32'	3.1
	50	35'	3.5
	60	37'	3.8
#4	30	31'	3.4
	40	34'	3.9
	50	37'	4.4
	60	38'	4.7
#6	40	38'	6.5
	50	40'	7.3
	60	42'	8.0
	70	44'	8.6

METRIC					
NOZZLE	PRESSURE		RADIUS	FLOW RATE	
	kPa	BARS	METERS	L/M	M ³ /H
#1	207	2.0	6.7	4.5	.34
	275	3.0	7.3	6.4	.39
	344	3.5	7.9	6.8	.41
	413	4.0	8.5	7.6	.46
#3	207	2.0	8.8	11.4	.68
	275	3.0	9.8	11.7	.71
	344	3.5	10.7	13.2	.80
	413	4.0	11.3	14.4	.87
#4	207	2.0	9.4	12.9	.78
	275	3.0	10.4	14.8	.89
	344	3.5	11.3	16.7	1.00
	413	4.0	11.6	17.8	1.07
#6	275	3.0	11.6	24.6	1.68
	344	3.5	12.2	27.6	1.66
	413	4.0	12.8	30.3	1.82
	482	5.0	13.4	32.6	1.96

Electric Valves

المحابس الكهربائية

Item Code : WSI - HIT - 200PVC

- Available in 1", 1 1/2", and 2" sizes, NPT or BSP threads.
- 1" available with female thread or socket inlet/outlet.
- Virgin PVC material construction (NSF approved material).
- Internal manual bleed lever standard on all valves.
- Heavy duty diaphragm.
- Manual bleed can be removed for "tamper proof" operation.
- Flow range from 5 to 120 GPM.
- 1 1/2" and 2" provided with both bottom (angle) or side inlet.
- All stainless steel fasteners and components.
- Standard 24 VAC 60 Hz solenoid (black wire) Hex plunger design for sandy water conditions.
- Special 24 VAC 50 Hz solenoid for European and Australian power (white wire).
- 1" available with or without flow control stem.
- 1 1/2" and 2" standard with flow control stem.
- Operating pressure range from 10 PSI to 150 PSI.
- Suitable for residential and commercial applications.



Operatin Specifications :

- 1" Flow: 5 - 30 GPM / 3-115 l/min
- 1 1/2" Flow: 5 - 80 GPM / 18-305 l/min
- 2" Flow: 5 - 120 GPM 18 - 455 l/min
- Operating pressure: 15 to 150 PSI / 1 to 10,3 bars; 103 to 1035 kPa
- Recommended velocity not to exceed 5 fbs

Electrical :

- 24 VAC standard
- Inrush: 350 mA
- Holding: 250 mA
- Cycles: (white wires) 50 Hz or (black wires) 60 Hz

Features :

- Internal manual bleed
- Stainless steel components
- PVC construction
- Plug provided for unused inlet (1 1/2" and 2")
- Recommended velocity not to exceed 5 fbs

Options Available :

- Reclaimed purple valves (consult price list)
- 110 VAC solenoid
- BSP threads

Electric Valves

المحابس الكهربائية

Model #	Size	Description	Overall Length	Overall Width	Overall Height
210-000	1"	Female Thread Inlet and Outlet without Flow Control	4 3/4" 12.06cm	3" 7.62cm	5 1/2" 13.97cm
210-005	1"	Slip Socket Inlet and Outlet without Flow Control	4 3/4" 12.06cm	3" 7.62cm	5 1/2" 13.97cm
210-055	1"	Slip Socket Inlet and Outlet with Flow Control	4 3/4" 12.06cm	3" 7.62cm	5 1/2" 13.97cm
210-050	1"	Female Thread Inlet and Outlet with Flow Control	4 3/4" 12.06cm	3" 7.62cm	5 1/2" 13.97cm
215-050	1 1/2"	Female Thread Inlet and Outlet with Flow Control	5 1/2" 13.97cm	4 1/4" 10.80cm	8" 20.32cm
220-050	2"	Female Thread Inlet and Outlet with Flow Control	6 1/2" 16.51cm	4 3/4" 12.06cm	9" 22.86cm

	flow GPM	15	20	25	30	35	40	45	50	60	70	80	90	100	110	120
Valve Size	1"	1.90	3.10	5.10	6.2											
	1 1/2"		3.01	2.60	2.68	2.30	2.36	2.65	3.01	4.10	4.90	5.62				
	2"		2.01	2.0	1.95	1.79	1.75	1.60	1.54	1.65	2.0	2.16	3.2	4.65	5.40	6.28

	flow l/min	57	75	95	113	132	151	170	189	227	264	302	340	378	416	454
Valve Size	1"	,13 13,1	,21 21,4	,35 35,2	,43 42,8											
	1 1/2"		,21 20,7	,18 17,9	,18 18,5	,16 15,8	,16 16,3	,18 18,3	,21 20,8	,28 28,3	,34 33,8	,39 38,8				
	2"		,14 13,9	,14 13,8	,13 13,5	,12 12,4	,12 12,1	,11 11,1	,11 10,6	,11 11,4	,14 13,8	,15 14,9	,22 22,1	,32 32,1	,37 37,3	,43 43,3

CONTROLLER

لوحات التحكم في محابس الكهرباء

Item Code : WSI - PRO



- **Rain Sensor Ready (RSR):** This controller accepts a rain sensor signal directly into the software. Individual stations can be programmed to activate or not activate with the sensor signal. The stations controlled by the sensor will not water during wet periods.
- **RSR Delay Feature:** The rain sensor delay feature allows the user to set and override the sensor delay time at the controller. It is adjusted in 12 hour increments up to 240 hours. (Maximum delay).
- **6 & 9 Station Models:** Caters for all residential garden types, and light turf applications.
- **6 Fully Independent Programs:** Allows maximum flexibility during programming, allowing up to 6 starts per program, with a maximum of 36 starts per day.
- **Long Run Times:** Allows your system to use low flow nozzles and drippers over a long period of time. Station watering duration up to 12 hours 59 minutes.
- **Watering Frequency:** Maximum programming flexibility with 3 options available. A seven day watering cycle with individual day selection or 1 to 15 days interval watering or 365 day calendar for odd / even day watering.
- **Start Time Stacking:** The controller will stack watering start times should they overlap, ensures all programs are run.
- **Rain Off:** This facility easily suspends your automatic watering programs during winter or rain effected periods, eliminating the need to re-program the unit.
- **Permanent Memory:** Stores automatic programs during absence of mains power. Never lose your programs!
- **Automatic, Semi-Automatic and Manual Operations:** Provides great operating flexibility.
- **System Test Facility:** Provides the user with the ability to run the system, ensuring all valves are activating and spray arcs are adjusted.
- **Remote Programming:** Fit a standard 9V battery to program the unit without mains power.
- **Water Budget Feature:** Allows quick adjustment of watering durations in percentage from 10% to 200% in 10% increments.
- **Water Resistant Enclosure:** The water resistant enclosure also ensures ants, spiders and bugs cannot penetrate the enclosure.

Features and Benefits

- The Next Generation In Professional Irrigation Controllers That Link Directly To A Rain Sensor.
- Designed for residential and light commercial applications, the PRO 469 has six individual programs to allow for efficient watering of turf and garden areas on separate watering programs.
- This product features the new Rain Sensor Ready (RSR) technology which allows individual stations to be controlled by a rain sensor.

CONTROLLER

لوحات التحكم الكهربائية في ري المسطحات الخضراء

Features:

- 6 & 9 station models.
- 6 Fully Independent Programs, stations can be assigned from 1 to 6 programs allowing different durations and schedules with 6 start times per program, maximum of 36 starts per day.
- Program button: Navigate directly to the particular program via a separate button to adjust irrigation settings.
- Station watering duration up to 12 hours 59 minutes.
- Seven day watering cycle with individual day selection or 1 to 15 days interval watering or 365 day calendar for odd I even day watering.
- Watering start times are "stacked sequentially" if they overlap.
- "Rain Off" facility easily suspends your automatic watering during winter while retaining the time and programmed information.
- The rain sensor can be fitted to stop automatic watering during wet periods. Rain Sensor Ready (RSRJ technology allows individual stations to be set and controlled by the sensor.
- Rain Sensor Delay feature allows the user to set and override the sensor delay time at the controller. It is adjusted in 12 hour increments up to 240 hours. (Maximum delay)
- Automatic, Semi-Automatic and Manual Operations.
- System test facility.
- Water saver facility allows adjustment of watering durations in percentage from 10% to 200% in 10% increments.
- Master valve I pump start is standard.
- Permanent memory, holds programs during power outs.
- Use a 9 volt block battery to program the unit remotely or to maintain the clock during power outs.
- 5 Year manufacturers warranty.
- Pump I Master valve can be enabled or disabled by station or by program.
- Programmable overlap between stations (valves) from 0 to 99 seconds to prevent water hammer.
- Programmable delay between stations from 0 to 99 seconds, ideal for slow closing valves or to prevent cavitation or draw down in wells and bore installations. Note: During this delay the pump is running to build up pressure.

Electrical Specifications :

Electrical power supply Internal Transformer

Input: 220 - 240 Volt AC

Output: 24 volt AC, 1.25 Amps. (30VA)

Electrical Outputs

Maximum of 1.0 Amp.

To the Solenoid Valves:

24 VAC 50/60Hz 0.75 Amps maximum

(Runs up to 3 valves)

To the Master Valve / Pump Start:

24 VAC 0.25 Amps maximum

Note: Transformer and fuse capacity must be compatible with output requirements.

Overload Protection

Standard 20mm 1.0 Amp fuse.

Power Failure

Permanent memory holds programs.

Ordering Details

Order No.	Description
CRS3666RM	6 Station, in built transformer
CRS3669RM	9 Station, in built transformer

Product Size

Height: 224mm

Width: 200mm

Depth: 75mm (Measurements are approximate)

DRIPPERS DEVICES

TURBO KEY DRIPPER

منقط تربوكي



Description	Item Code	Quantity Per Carton	Weight Kgs
TURBOLANT FLOW			
Turbo-Key - 2 LPH	WS - 4000 - 2		
Turbo-Key - 4 LPH	WS - 4000 - 4	2400	10.86
Turbo-Key - 8 LPH	WS - 4000 - 8	2400	11.30

Octa-Shrubbler Adjustable Mini Bubbler

منقط اوكتا بسن



Description	Item Code	Quantity Per Carton	Weight Kgs
4MM Thread Octa			
Octa shrubbler with 4mm Threaded Inlet Adjustable Flow 0-50 LPH	WS-OCTA-ST	6000	9.50

TURBO - PC DRIPPER

منقط ثابت التصديف



Description	Item Code	Quantity Per Carton	Weight Kgs
PRESSURE COMPENSATING DRIPPER			
Turbo-PC Dropper - 4 LPH	WS-4504-4LPH	2400	11.30
Turbo-PC Dropper - 8 LPH	WS-4508-8LPH	2400	10.68

Octa-Shrubbler Adjustable Mini Bubbler

منقط اوكتا للشعيرات



Description	Item Code	Quantity Per Carton	Weight Kgs
4mm Barb Octa on a 5" Spike			
4mm Barb Octa shrubbler on a 5" Spike Adjustable Flow 0-50 LPH	WS-OCTA - ST	1000	5.55

HI-FLOW DRIPPER 24 LPH

منقط هاي فلو



Description	Item Code	Quantity Per Carton	Weight Kgs
HI-FLOW			
Pressure Compensating Dropper 24 Lph - (6gph)	WS-HFD-24	2000	14.60

Adjustable Flow Dropper

منقط اذجستبل



Description	Item Code	Quantity Per Carton	Weight Kgs
Adjustable Flow Dropper Single Outlet - 2 -100 LPH			
Adjustable Flow Dropper Single Outlet - 2 -100 LPH	WS-ADJ - 1	1500	11.75

Octa-Shrubbler Adjustable Mini Bubbler

منقط اوكتا كبس



Description	Item Code	Quantity Per Carton	Weight Kgs
4MM Barb Octa			
Octa shrubbler with 4mm Barbed Inlet 360° Adjustable Flow Dropper 0-50 Lph	WS-OCTA-88	6000	9.50

Adjustable Flow Dropper

منقط اذجستبل



Description	Item Code	Quantity Per Carton	Weight Kgs
Adjustable Flow Dropper Double Outlet - 2 -100 LPH			
Adjustable Flow Dropper Double Outlet - 2 -100 LPH	WS-ADJ - 2	2000	9.80

DRIPPERS DEVICES

Big Octa

منقط أوكتا الكبير



Description	Item Code	Quantity Per Carton	Weight Kgs
Barbed Inlet 360° Adjustable Flow Dripper 0-100 Lph	WS-OCTA-BIG	6000	9.50

Adjustable Flood Bubbler

منقط ٣٥٥



Description	Item Code	Quantity Per Carton	Weight Kgs
Adjustable Flood Bubbler Inlet Size : 1/2" BSP Female Thread Operating Pressure : 1-2.75 Bar Flow Rate : 0 - 22 lit / min. Radius : 0 - 60 cm	WS - 533	700	13.42

Micro Sprays

سبري جت



Description	Item Code	Quantity Per Carton	Weight Kgs
Single Piece Spray Jets			
Spray Jets 360° - 1.6 mm Black	WS-JSF 16	40000	
Spray Jets 180° - 1.6 mm Black	WS-JSH 16	40000	
Spray Jets 90° - 1.6 mm Black	WS-JSQ 16	40000	
FLOW CHART			
PRESSURE (BAR)		FLOW (LPH)	
1		88	
2		195	
3		124	
4		144	

Adjustable Flood Bubbler

(Screw Type)

ببلر (منقط فقاعي) قابل للضبط



Description	Item Code	Quantity Per Carton	Weight Kgs
Adjustable Flow Bubbler (Screw Type) Inlet Size : 1/2" BSP Female Thread Operating Pressure : 0.7 - 4 Bar Flow Rate : 4 LPM - 9 LPM Radius : 30cm - 90cm	WS - 1600	1000	13.50

Spray Jet Green



Description	Item Code	Quantity Per Carton	Weight Kgs
Green Spray Jet 180° 2 mmFlow : 115 LPH Pressure : 1 Bar	WS- SJH 20	40000	19.64

Full Circle Bubblers (Rain Bird)

Pressure Compensating

ببلر (منقط فقاعي) منظم للضغط



Description	Item Code	Quantity Per Carton	Weight Kgs
P.C Bubbler 0.25 GPM (0.94 LPM)	WS - 1701	1200	12.25
P.C Bubbler 0.5 GPM (1.89 LPM)	WS - 1702	1200	12.20
P.C Bubbler 1.0 GPM (3.78 LPM)	WS - 1703	1200	12.20
P.C Bubbler 2 GPM (7.56 LPM)	WS - 1708	1200	10.80
Inlet Size : 1/2" BSP Female Thread			

STAKES & RISERS

Stake for Bubblers

حامل ببلر (حامل منقط فقاعي)



Description	Item Code	Quantity Per Carton	Weight Kgs
WS - SRB			
Bubbler Stake 13mm Barb inlet x 1/2" BSP Outlet	WS - SRB13	500	15.00
Bubbler Stake 16mm Barb inlet x 1/2" BSP Outlet	WS - SRB16	500	15.35

Micro Stake

حامل منقطات 4 مم



Description	Item Code	Quantity Per Carton	Weight Kgs
For Emitters and Micro Tube (Pot Stake)			
Micro Stake for 4 mm Pipe & Emitter	WS - ST4	2500	18.25

Stake for Bubblers

حامل ببلر



Description	Item Code	Quantity Per Carton	Weight Kgs
WS - ST 13			
Bubbler Stake 13mm Barb inlet x 1/2" ST Outlet	WS - ST 13	500	15.60

Micro Rigid Riser

رجت رايزر



Description	Item Code	Quantity Per Carton	Weight Kgs
with 4mm Adaptor			
Rigid riser 4mm Pipe 200mm Long with Adaptor	WS - RGR200	2600	15.70
Rigid riser 4mm Pipe 300mm Long with Adaptor	WS - RGR300	2000	17.22
Rigid riser 4mm Pipe 400mm Long with Adaptor	WS - RGR400	1000	12.10

Riser / Pipe Stake

ستيك أنبوب



Description	Item Code	Quantity Per Carton	Weight Kgs
For Holding Poly Tube			
Stake for Poly Pipe 13mm	WS - SP12	650	7.20
Stake for Poly Pipe 19mm (Holds 13mm/19mm Poly Pipe and Supports Rigid Riser for tidy finish)	WS - SP34	600	6.90

ACME

وصلة نقاص



Description	Item Code	Quantity Per Carton	Weight Kgs
Quick Connection Adaptor			
ACME Connection 3/8" x 1/2"	WS - WN-5612		
ACME Connection 3/8" x 3/4" For Nelson Spray R10	WS - WN-5634		

Pipe Stake

ستيك أنبوب جهتين



Description	Item Code	Quantity Per Carton	Weight Kgs
Stake for Poly Pipe 13mm & 16mm (ID)			
	WS - SP5812	300	4.45

ACME

قائم مع اداكتور



Description	Item Code	Quantity Per Carton	Weight Kgs
Quick Connection Adaptor with Riser			
ACME Connection 3/8" x 1/2" with Riser 300mm	WS - WN-R5612		
ACME Connection 3/8" x 3/4" with Riser 300mm	WS - WN-R5634		

POP UP SPRAY SPRINKLERS WITH ARC ADJUSTABLE NOZZLE

SHRUB ADAPTORS



Description	Item Code	Quantity Per Carton	Weight Kgs
Shrub Adaptor 1/2" Female Inlet	WS-1200-16	2200	10.44

CHECK VALVE

كبس عدم رجوع للرشاشات



Description	Item Code	Quantity Per Carton	Weight Kgs
Check Valve for Sprinkler	WSI-PPCV		

SPRINKLERS

MINI POP UP Impact Rotor Sprinklers

ميني بوب آب



Description	Item Code	Quantity Per Carton	Weight Kgs
MINI POP-UP IMPACT SPRINKLER 1/2" INLET	WSI - 43031		
Pressure = 1.7 to 3.4 Bar Flow : 7.2 to 9.8 lpm Radius : 10.1m to 13.1m Adjustable Arc			

Full Circle Plastic Impact Sprinkler

رشاش الوسائل بلاستيك 3/4"



Description	Item Code	Quantity Per Carton	Weight Kgs
Full circle Impact Sprinkler 3/4" BSP Male	WS-1400-34		
Full circle Impact Sprinkler 1" BSP Male	WS-1400-10		
Pressure = 2 to 5 Bar Flow : 26 to 42 lpm Radius : 13 to 17 m * Standard Nozzle Size 5 x 2.5mm.			

1/2 " Plastic Impact Sprinklers (Part / Full Circle)

رشاش بلاستيك



Description	Item Code	Quantity Per Carton	Weight Kgs
1/2" Plastic Impact Sprinklers	WSI-43011		
Pressure = 1 to 3.1 Bar Flow : 10.2 to 17.7 lpm Radius : 8.8 to 13.1 m Adjustable Arc			

SPRINKLERS

Brass Impact Sprinklers

رشاشات نحاس تحكم ٣/٤"



Description	Item Code	Quantity Per Carton	Weight Kgs
3/4" Part Circle			
Pressure = 1.8 to 4.3 Kg/cm2 Flow : 28 to 43 lpm Diameter : 29m to 32m Standard Nozzle Size : 4.76 x 3.17	WSI - AE - 30FC		

Brass Impact Sprinklers

رشاشات نحاس ١/٢"



Description	Item Code	Quantity Per Carton	Weight Kgs
1/2" Female Full Circle			
Pressure = 1 to 3 Kg/cm2 Flow : 29 to 39 lpm Diameter : 25m to 29m Standard Nozzle Size : 5 x 3mm	WSI - AE - B15		

Brass Impact Sprinklers

رشاشات نحاس ٣/٤" دائرة كاملة



Description	Item Code	Quantity Per Carton	Weight Kgs
3/4" Full Circle			
Pressure = 2.1 to 3.5 Kg/cm2 Flow : 34 to 45 lpm Diameter : 27m to 34m Standard Nozzle Size : 5.15 x 3.17	WS-AE-30FC		

Brass Impact Sprinklers

رشاش نحاس ١"



Description	Item Code	Quantity Per Carton	Weight Kgs
1" Female Full Circle			
Pressure = 2 - 5 Kg/cm2 Flow : 44 to 71 lpm Diameter : 26 to 35m Standard Nozzle Size : 5.55 x 4.8mm	WSI - AE - B50		

CENTER PIVOT SPRAY SPRINKLERS

SUPER SPRAY SPRINKLER



Description	Item Code	Quantity Per Carton	Weight Kgs
FOR CENTER PIVOT IRRIGATION			
Super Spray for Center Pivot Sprinkler With Convex Deflector	WS - 2000 - CONVEX	220	11.60
Super Spray for Center Pivot Sprinkler With Flat Deflector	WS - 2000 - FLAT	220	12.00
Convex Deflector	WS - 2000 - DCV	1800	11.15
Flat Deflector	WS - 2000 - DFL	1800	11.10
Super Spray Nozzle Nozzle Size From 04 to 25	WS - NZ - 04	2000	15.56
SUPER SPRAY BODY ONLY	WS - CPS - NZ - BODY	220	11.00

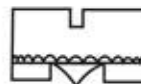
CENTER PIVOT SPRAY SPRINKLER

رشاش اسبراي للري المحوري



Description	Item Code	Quantity Per Carton	Weight Kgs
FOR CENTER PIVOT IRRIGATION			
Center Pivot Spray Only Nozzle Size from 5 to 30	WS - CPS - 05	225	8.30

Deflector



Description	Item Code	Quantity Per Carton	Weight Kgs
Deflector	WS - CPS - DCV	2000	

Center Pivot Sprinkler Connector

وصلة رشاش محوري



Description	Item Code	Quantity Per Carton	Weight Kgs
Center Pivot Sprinkler Connector	WS - CPSC	225	7.15

QUICK COUPLING VALVES & ACCESSORIES

قطع الربط السريع

Quick Coupling Valves

محبس الربط السريع



Description	Item Code	Quantity Per Carton	Weight Kgs
BSP Thread Inlet Size (Inch)			
3/4" Female	WSI - AE - QCV34		
1" Female	WSI - AE - QCV10		

Quick Coupling Elbows

كوع الربط السريع



Description	Item Code	Quantity Per Carton	Weight Kgs
Female x Male Inlet x Outlet BSP Thread Female X Male Inch x Inch			
3/4" x 3/4" 1" x 1"	WSI - AE - QCE34 WSI - AE - QCE10		

Quick Coupling Keys

مفتاح الربط السريع



Description	Item Code	Quantity Per Carton	Weight Kgs
BSP Thread Top pipe Thread (Inch) Male BSP			
3/4" 1"	WSI - AE - QCK34 WSI - AE - QCK10		

BRASS SPRAY

رشاش نحاس 3/4"



Description	Item Code	Quantity Per Carton	Weight Kgs
BRASS SPRAY			
3/4" BSP Female	WSI - AE - OZULE		

PLASTIC SCREEN / DISK FILTER

الفلاتر

Plastic Screen Filters

فلتر سكرين



Description	Item Code	Quantity Per Carton	Weight Kgs
Plastic Y - Screen Filter 120 mesh Flow : 75 LPM 1" BSP Male	WS - YPFS10	20	
Plastic Y - Screen Filters 120 mesh Flow : 225 LPM 1 1/2" BSP Male	WS - YPFS15	15	
120 mesh Filter Element for 1" Screen filter	WS - YPFE10	20	
120 mesh Filter Element for 1 1/2" Screen Filter	WS - YPFE15	15	

Plastic Disc Filters

فلتر ديسك 2"



Description	Item Code	Quantity Per Carton	Weight Kgs
2" (50mm) Disc Filter			
Plastic Disc Filter 2" (50mm) Male (120 mesh)	WS - SWC - 2		
Flow : 25 m3/hr Maximum Operating Pressure = 8 bar			

Plastic Disc Filters

فلتر ديسك 3"



Description	Item Code	Quantity Per Carton	Weight Kgs
3" (75mm) Disc Filter			
Plastic Disc Filter 3" (75mm) Male (120 mesh)	WS - SWC - 3		
Flow : 45 m3/hr Maximum Operating Pressure = 8 bar			

FILTERS & FERTILIZER TANKS

الفلاتر

PLASTIC AUTOMATIC FILTER



Plastic Automatic Filter

Description	Items Code	Model	Max. Flow Rate m³/h
2" BSP Super Plastic Automatic Filter		2SR	24 m³/h
		2SV	
		2SW	
3" BSP Plastic Automatic Filter		3NR	32 m³/h
		3NV	
		3NW	
4" BSP Super Plastic Automatic Filter		4SL	64 m³/h

Available Station 48 m³/h to 1080 m³/h.



CONTROL UNIT

Available 220 AC & 12 DC from 1 - 12 Station



WATER DESILINATION (RQ SYSTEM)



Available upon request

FILTERS & FERTILIZER TANKS

الفلاتر

PLASTIC Y FILTER



2" BSP

Description	Items Code	Quantity per Box	Max. Flow Rate m³/h
Plastic Y filter screen 3/4" BSP	AR	60	5 m³/h
	2V	10	
Plastic Y filter screen 1" BSP	AR	60	6 m³/h
	2V	10	
Plastic Y filter screen 1 1/4" BSP	AR	25	10 m³/h
	2V	4	
Plastic Y filter screen 1 1/2" BSP	AR	25	14 m³/h
	2V	4	
Plastic Y filter screen 1 1/2" Super BSP	AR	13	20 m³/h
	2V	2	
Plastic Y filter screen 2" BSP	AR	13	25 m³/h
	2V	2	

PLASTIC MANUAL DISK FILTER

Description	Items Code	Model	Max. Flow Rate m³/h
2" BSP Plastic Disc Filter T Shape		2NR	30m³/h
		2NV	
		2NW	
2" BSP Super Plastic Disc Filter T Shape		2SR	30m³/h
		2SV	
		2SW	
3" BSP Compact Plastic Disc Filter T Shape		3CR	50m³/h
		3CV	
		3CW	
3" BSP Plastic Disc Filter T Shape		3NR	50m³/h
		3NV	
		3NW	

Connections / Connections



Description	Items Code	Model	Max. Flow Rate m³/h
4" BSP Double Disc Filter		4NL	70m³/h
		4NB	
4" BSP Super Double Disc Filter		4SL	100m³/h
		4SB	
6" BSP Double Disc Filter		6NB	100m³/h



PLASTIC MANUAL SCREEN FILTER



Description	Items Code	Model	Max. Flow Rate m³/h
2" BSP Plastic Screen Filter T Shape		2NR	30m³/h
		2NV	
		2NW	
2" BSP Super Plastic Screen Filter T Shape		2SR	30m³/h
		2SV	
		2SW	
3" BSP Compact Plastic Screen Filter T Shape		3CR	50m³/h
		3CV	
		3CW	
3" BSP Plastic Screen Filter T Shape		3NR	50m³/h
		3NV	
		3NW	

PLASTIC SPIRAL CLEAN FILTER



Description	Items Code	Model	Max. Flow Rate m³/h
2" BSP Plastic Spiral Clean Filter		2NR	30m³/h
		2NW	
2" BSP Super Plastic Spiral Clean Filter		2SR	30m³/h
		2SW	
3" BSP Compact Plastic Spiral Clean Filter		3CR	50m³/h
		3CW	
3" BSP Plastic Spiral Clean Filter		3NR	50m³/h
		3NW	



Description	Items Code	Model	Max. Flow Rate m³/h
4" BSP Double Screen Filter		4NL	70m³/h
		4NB	
4" BSP Super Double Screen Filter		4SL	100m³/h
		4SB	
6" BSP Double Screen Filter		6NB	100m³/h

FILTERS & FERTILIZER TANKS

الفلاتر

Epoxy coated
Steel Screen Filters
فلتر معدن



Description	Item Code	Quantity Per Carton	Weight Kgs
Steel Screen Filter 3" (120mesh)	WS - 1630SF		
Steel Screen Filter 4" (120mesh)	WS - 1640SF		
Steel Screen Filter 6" (120mesh)	WS - 1660SF		
Replaceable Filter Element	WS - FS		
Max. Operating Pressure = 8 Bar			
Size (inch)	3"	4"	6"
Flow (m3/ Hr)	36	72	125

HYDRO CYCLONE FILTER
(SAND SEPARATOR)
فلتر رملي



Description	Item Code	Quantity Per Carton	Weight Kgs	
Hydro Cyclone Filter 2"	WS - HCF - 2"			
Hydro Cyclone Filter 3"	WS - HCF - 3"			
Hydro Cyclone Filter 4"	WS - HCF - 4"			
Hydro Cyclone Filter 6"	WS - HCF - 6"			
Size Available				
2" . 3" . 4" . 6"				
Max. Operating Pressure = 8 Bar				
Size (Inch)	2"	3"	4"	6"
Flow (m3/ Hr)	20	40	60	160

MEDIA SAND FILTER



Description	Item Code	Quantity Per Carton	Weight Kgs
Media Sand Filter 3"	WS - HMF - 3"		
Media Sand Filter 4"	WS - HMF - 4"		
Max. Operating Pressure = 8 Bar			
Size (inch)	3"	4"	
Flow (m3/ Hr)	40 - 80	40 - 90	

Epoxy coated
Fertilizer Tank
سمادة



Description	Item Code	Quantity Per Carton	Weight Kgs
Fertilizer Tank Installation			
Fertilizer Tank 50 lit.	WS-FT-50		
Fertilizer Tank 100 lit.	WS-FT-100		
Fertilizer Tank 160 lit.	WS-FT-160		
Fertilizer Tank 200 lit.	WS-FT-200		
Fertilizer Tank 400 lit.	WS-FT-400		
Fertilizer Tank 450 lit.	WS-FT-450		
Fertilizer Tank 600 lit.	WS-FT-600		
Provision:			
Inlet : 1/2" - BSP - Female			
Outlet : 1/2" - BSP - Female			
Drain Valve Connection = 1" BSP - Female			
Air Relief Valve Connection = 1/2" BSP - Female			
Max. Operating Pressure = 8 Bar			

SUPER CLEAN
SCREEN FILTER



Description	Item Code	Quantity Per Carton	Weight Kgs	
Super Clean Screen Filter 3"	WS - SCSF - 30			
Super Clean Screen Filter 4"	WS - SCSF - 40			
Super Clean Screen Filter 6"	WS - SCSF - 60			
Super Clean Screen Filter 8"	WS - SCSF - 80			
Max. Operating Pressure = 8 Bar				
Size (inch)	3"	4"	6"	8"
Flow (m3/ Hr)	50	80	160	300

QUICK ACTION SHUT OFF VALVES

المحابس

BARBED VALVES

محبس كبس



Description	Item Code	Quantity Per Carton	Weight Kgs
Barb x Barb mm x mm			
Inlet x Outlet mm x mm			
13 x 13	WS-VQA12	500	8.75
16 x 16	WS-VQA58	450	8.80

BARBED THREADED VALVE

محبس كبس بسنة



Description	Item Code	Quantity Per Carton	Weight Kgs
BSP Male x Barb Inch x mm			
Inlet x Outlet mm x Inch			
13 x 1/2"	WS - VQAT - 1212	450	8.30
13 x 3/4"	WS - VQAT - 1234	350	8.00
16 x 1/2"	WS - VQAT - 5812	450	9.50
16 x 3/4"	WS - VQAT - 5834	350	8.30

BARBED VALVES

محبس كبس



Description	Item Code	Quantity Per Carton	Weight Kgs
Barb x Barb mm x mm			
Inlet x Outlet mm x mm			
19 x 19	WS-VQA-34	150	8.00
22 x 22	WS-VQA-22	150	8.40
32 x 32	WS-VQA-114	125	7.80

BARBED THREADED VALVE

محبس كبس بسنة



Description	Item Code	Quantity Per Carton	Weight Kgs
BSP Male x Barb Inch x mm			
Inlet x Outlet mm x Inch			
19 x 3/4"	WS - VQAT - 3434	150	7.14
19 x 1"	WS - VQAT - 3410	150	8.50
22 x 3/4"	WS - VQAT - 2234	150	7.75
32 x 3/4"	WS - VQAT - 11434	125	8.10
32 x 1"	WS - VQAT - 11410	125	8.20

BALL VALVE FOR IRRIGATION

محبس كرة

FEATURES & SPECIFICATION

- Manufactured from ABS Plastic Material
- Ideally Suitable for Irrigation Systems and water network
- BSP Threaded Inlet and Outlet Connection
- Economical
- Non Corrossive and highly resistant to chemical & temperature
- Maximum Operating Pressure 6 Bar.

BALL VALVES



Description	Item Code	Quantity Per Carton	Weight Kgs
Male x Female Inch x Inch (BSP Thread)			
Inch x Inch M x F			
1" x 1"	WS-BV34	400	
1 1/2" x 1 1/2"	WS-BV10	100	18.00
	WS-BV15	50	18.00
	WS-BV20	30	18.80
	WS-BV30	08	12.50



WE COUNT EVERY DROP.



VALVE BOXES

Valve Boxes Features :

Valve Boxes provide protection from damage (children, animals, vandals, etc.), easy access for maintenance and repairs and hide unsightly irrigation components from sight.

We carry complete valve boxes along with valve box replacement covers and valve box extensions. Whatever you need, we have you covered!

Specifications :

- Thicker wall dimensions for increased strength and durability.
- Reinforced covers for heavier loads.
- Reinforced ribs offer exceptional sidewall strength.
- High-impact, high-density /poly propylene or PE structural construction.
- Overlapping covers prevent dirt and grass from settling in between body and cover.
- UV inhibitors prevent discoloration and cracking.



Series Valve Boxes by Al-Wasail

- Engineered specifically for the professional contractor and heavy-duty use.
- Superior strength for commercial and utility applications.
- 6",10" and 11" available in round Boxes "
- 12",20",15" & 18" valve boxes are available in Rectangular Boxes.

Technical data

Manufacturer	Unit/Size	Maximum Load Sustained (kN)	Falling Test (5 METERS)	Color
AL-Wasail	610-VB (6")	12.03	NO Cracked	Green / Black
	910-VB (10")	17.64	NO Cracked	
	111-VB (11")	31.05	NO Cracked	
	1419-VB (12")	49.82	NO Cracked	
	1320-VB (20")	49.82	NO Cracked	
	1324-VB (15 JUMBO)	49.82	NO Cracked	
	1730-VB (18 SUPER JUMBO)	49.82	NO Cracked	



VALVE BOXES

صناديق المحابس

Series 610 6" Round Valve Box



Description	Item Code	Quantity Per Carton	Weight Kgs
6" Round Valve Box - Complete (GR Body + GR Cover)	WS - VB 610 - G	100	
6" Round Valve Box - Complete (Black Body + Black Cover)	WS - VB 610 - B	100	
6" Round Valve Box Cover - Green	WS - VB 610 - Cover	50	
6" Round Valve Box Body - Green	WS - VB 610 - Body-G	100	
6" Round Valve Box Body - Black	WS - VB 610 - Body-B	100	

NOTE : Special Colour and Cover Marking Available on Request.

Series 910 10" Round Valve Box



Description	Item Code	Quantity Per Carton	Weight Kgs
10" Round Valve Box - Complete (GR Body + GR Cover)	WS - VB 910 - G	36	
10" Round Valve Box - Complete (Black Body + Black Cover)	WS - VB 910 - B	36	
10" Round Valve Box Cover - Green	WS - VB 910 - Cover	40	
10" Round Valve Box Body - Green	WS - VB 910 - Body-G	36	
10" Round Valve Box Body - Black	WS - VB 910 - Body-B	36	
S. S. Bolt and Nut M8x80mm (Optional)	WS - VB 910 - SSB	36	

NOTE : Special Colour and Cover Marking Available on Request.

Series 1111 11" Round Valve Box



Description	Item Code	Quantity Per Carton	Weight Kgs
11" Round Valve Box - Complete (GR Body + GR Cover)	WS - VB 1111 - G	120	
11" Round Valve Box - Complete (Black Body + Black Cover)	WS - VB 1111 - B	120	
11" Round Valve Box Cover - Green	WS - VB 1111 - Cover	120	
11" Round Valve Box Body - Green	WS - VB 1111 - Body-G	120	
11" Round Valve Box Body - Black	WS - VB 1111 - Body-B	120	
S. S. Bolt and Nut M 8 x 80 mm (Optional)	WS - VB 1111 - SSB	120	

NOTE : Special Colour and Cover Marking Available on Request.

Series 1419 12" Standard Rectangular Valve Box



Description	Item Code	Quantity Per Carton	Weight Kgs
12" Standard Rectangular Valve Box - Complete (GR Body + GR Cover)	WS - VB 1419 - G	90	PALLET
12" Standard Rectangular Valve Box - Complete (Black Body + Black Cover)	WS - VB 1419 - B	90	PALLET
12" Standard Rectangular box Cover Green	WS - VB 1419 - Cover	20 (L)	
12" Standard Rectangular Valve box Body Green	WS - VB 1419 - Body - G	90	PALLET
12" Standard Rectangular Valve box Body Black	WS - VB 1419 - Body - B	90	PALLET
S.S. Bolt and Nut M 8 x 80 mm (Optional)	WS - VB 1419 - SSB	90	

NOTE : Special Colour and Cover Marking Available on Request.

Series 1419 6" Standard Extension and Low Profile Valve Box



Description	Item Code	Quantity Per Carton	Weight Kgs
6" Standard Extension Valve Box - Complete (GR Body + GR Cover)	WS - VBEX 1419 - G	90	
6" Standard Extension Valve Box - Complete (Black Body + Black Cover)	WS - VBEX 1419 - B	90	
6" Standard Extension box Cover - Green	WS - VBEX 1419 - Cover	20	
6" Standard Extension Valve box Body - Green	WS - VBEX 1419 - Body-G	90	
6" Standard Extension Valve box Body - Black	WS - VBEX 1419 - Body-B	90	
S. S. Bolt and Nut M8x80mm (Optional)	WS - VBEX 1419 - SSB	90	

NOTE : Special Colour and Cover Marking Available on Request.

Series 1320 20" Jumbo Rectangular Valve Box



Description	Item Code	Quantity Per Carton	Weight Kgs
20" Jumbo Rectangular Valve Box - Complete (GR Body + GR Cover)	WS - VB 1320 - G	60	PALLET
20" Jumbo Rectangular Valve Box - Complete (Black Body + Black Cover)	WS - VB 1320 - B	60	PALLET
20" Jumbo Rectangular box Cover Green	WS - VB 1320 - Cover	10 (L)	
20" Jumbo Rectangular Valve box Body - Green	WS - VB 1320 - Body-G	60	PALLET
20" Jumbo Rectangular Valve box Body - Black	WS - VB 1320 - Body-B	60	PALLET
S. S. Bolt and Nut M 8 x 80 mm (Optional)	WS - VB 1320 - SSB		

NOTE : Special Colour and Cover Marking Available on Request.

VALVE BOXES

صناديق المحابس



Valve Box
6" Rain Bird Type
Green
WS-VB610 -RB-G

Series 1320
6" Jumbo - Extension
Valve Box



Description	Item Code	Quantity Per Carton	Weight Kgs
6" Jumbo Extension Valve Box - Complete (GR Body + GR Cover)	WS - VBEX 1320 - G		
6" Jumbo Extension Valve Box - Complete (Black Body + Black Cover)	WS - VBEX 1320 - B		
6" Jumbo Extension box Cover Green	WS - VBEX 1320 - Cover		
6" Jumbo Extension Valve box Body Green	WS - VBEX 1320 - Body - G		
6" Jumbo Extension Valve box Body Black	WS - VBEX 1320 - Body - B		
S. S. Bolt and Nut M8x80mm (Optional)	WS - VBEX 1320 - SSB		

NOTE : Special Colour and Cover Marking Available on Request.

Series 1730
18" Super Jumbo
Rectangular Valve Box
جامبو ١٨"



Description	Item Code	Quantity Per Carton	Weight Kgs
18" Super Jumbo Rectangular Valve Box - Complete (GR Body + GR Cover)	WS - VB 1730 - G	08	PALLET
18" Super Jumbo Rectangular Valve Box - Complete (Black Body + Black Cover)	WS - VB 1730 - B	08	PALLET
18" Super Jumbo Rectangular box Cover Green	WS - VB 1730 - Cover		
18" Super Jumbo Rectangular Valve box Body Green	WS - VB 1730 - Body-G	08	PALLET
18" Super Jumbo Rectangular Valve box Body Black	WS - VB 1730 - Body-B	08	PALLET
S. S. Bolt and Nut M 8 x 80 mm (Optional)	WS - VB 1730 - SSB		

NOTE : Special Colour and Cover Marking Available on Request.

Series 1324
15" Big Jumbo
Rectangular Valve Box



Description	Item Code	Quantity Per Carton	Weight Kgs
15" Big Jumbo Rectangular Valve Box - Complete (GR Body + GR Cover)	WS - VB 1324 - G	18	PALLET
15" Big Jumbo Rectangular Valve Box - Complete (Black Body + Black Cover)	WS - VB 1324 - B	18	PALLET
15" Big Jumbo Rectangular box Cover Green	WS - VB 1324 - Cover		
15" Big Jumbo Rectangular Valve box Body Green	WS - VB 1324 - Body-G	18	PALLET
15" Big Jumbo Rectangular Valve box Body Black	WS - VB 1324 - Body-B	18	PALLET
S. S. Bolt and Nut M8x80mm (Optional)	WS - VB 1324 - SSB		

NOTE : Special Colour and Cover Marking Available on Request.

VALVE BOX PALLET DETAILS



VALVE BOX ITEM CODE NO.	PALLET SIZE CM L X B X H	QUANTITY (PCS) PER PALLET	TOTAL WEIGHT WITH PALLET (KGS)
WS - VB - 610	130 x 110 x 220	660	415

Note:- Weight and dimensions may vary slightly.



VALVE BOX ITEM CODE NO.	PALLET SIZE CM L X B X H	QUANTITY (PCS) PER PALLET	TOTAL WEIGHT WITH PALLET (KGS)
WS - VB - 1419	130 x 110 x 220	132	599

Note:- Weight and dimensions may vary slightly.



VALVE BOX ITEM CODE NO.	PALLET SIZE CM L X B X H	QUANTITY (PCS) PER PALLET	TOTAL WEIGHT WITH PALLET (KGS)
WS - VB - 910	130 x 110 x 220	300	395

Note:- Weight and dimensions may vary slightly.



VALVE BOX ITEM CODE NO.	PALLET SIZE CM L X B X H	QUANTITY (PCS) PER PALLET	TOTAL WEIGHT WITH PALLET (KGS)
WS - VB - 1320	130 x 110 x 220	112	600

Note:- Weight and dimensions may vary slightly.



WE COUNT EVERY DROP.



TOOLS & ACCESSORIES

TOOLS & ACCESSORIES

Tools & Accessories Mutipurpose Tools

خرامة طرفين



Description	Item Code	Quantity Per Carton	Weight Kgs
Key for Dripper & Hole Punch Tools	WS-KPT	900	11.00

Hole Punch

خرامة طرف واحد



Description	Item Code	Quantity Per Carton	Weight Kgs
Hole Punch 4mm	WS-WJPU	2000	11.20

Key for Saddle Bolt & Nut

مفتاح فك الربط



Description	Item Code	Quantity Per Carton	Weight Kgs
Key for Saddle Bolt & Nut (8mm)	WSK-T513		

Al-Wassel Wrench

أداة ربط قطع الربط



Description	Item Code	Quantity Per Carton	Weight Kgs
For Compression Fittings			
Wrench for Compression Fittings 16 mm - 40mm	WS-CT 1640	220	11.75
Wrench for Compression Fittings 32 mm - 63mm	WS-CT4063	120	12.15
Wrench for Compression Fittings 75 mm - 125mm	WS-CT 75125	50	18.62

Al-Wassel Nylon Wrench



Description	Item Code	Quantity Per Carton	Weight Kgs
WS - BCT - PA			
For Compression Fittings			
To Suit Compression Fittings mm x mm			
16 x 40	WS - CTN - 1640 - PA	220	11.75
32 x 63	WS - CTN - 4063	120	12.15
63 x 125	WS - CTN - 63125 - PA	50	18.62

Safety Devices AIR RELIEF VALVE

محبس هواء



Description	Item Code	Quantity Per Carton	Weight Kgs
Air Relief Valve 2" Female Thread	WSI - AE - AV2		
Air Relief Valve 3" Female Thread	WSI - AE - AV3		
Air Relief Valve 4" Female Thread	WSI - AE - AV4		
Continuous Acting AIR VENT 2"			

Pressure Gauge

ساعة ضغط



Description	Item Code	Quantity Per Carton	Weight Kgs
Glycerine Filled Pressure Gauge 0 - 16 Bar	WS - PG		

Irrigation Control Cable

Under Ground Feeder Cable (UF)

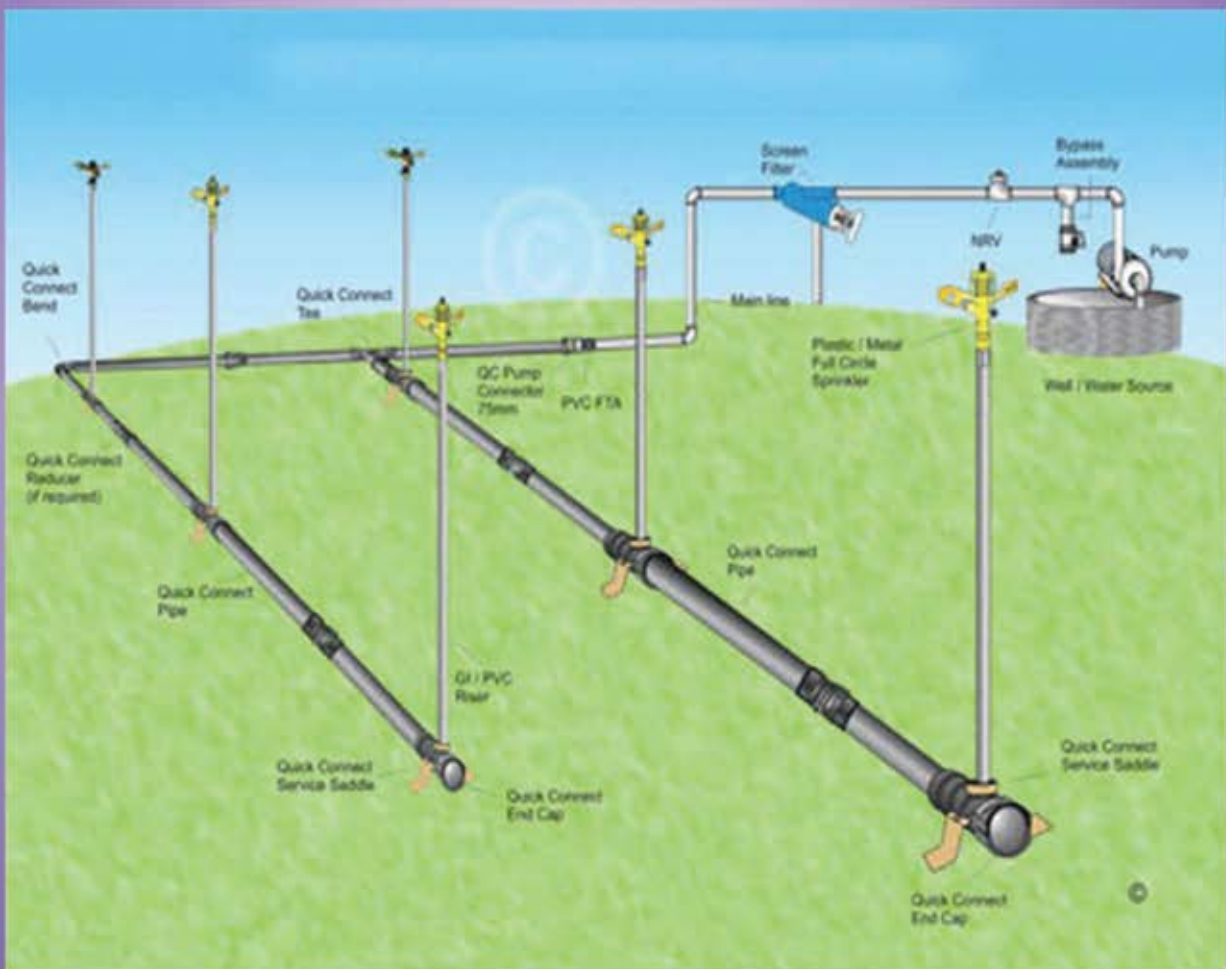
Durability and Flexibility For General Irrigation Use

وير



Description	Item Code	Quantity Per Carton	Weight Kgs
Irrigation Cable			
AWG 14 - Irrigation Cable 500 Feet	WS-AWG 14 - 500		
AWG 14 - Irrigation Cable 2500 Feet	WS-AWG 14 - 2500		
AWG 12 - Irrigation Cable 500 Feet	WS-AWG 12 - 500		
AWG 12 - Irrigation Cable 2500 Feet	WS-AWG 12 - 2500		

WE COUNT EVERY DROP.



DESIGN DATA

DESIGN DATA

Friction Loss Characteristics-Polyethylene (PE) SDR-Pressure Rated Tube

(2306, 3206, 3306) SDR 7,9,11.5, 15 C =140- PSI LOSS PER 100 FEET OF TUBE (PSI/100 FT)

• Sizes: 1/2" thru 6" • Flow 1 thru 600 GPM

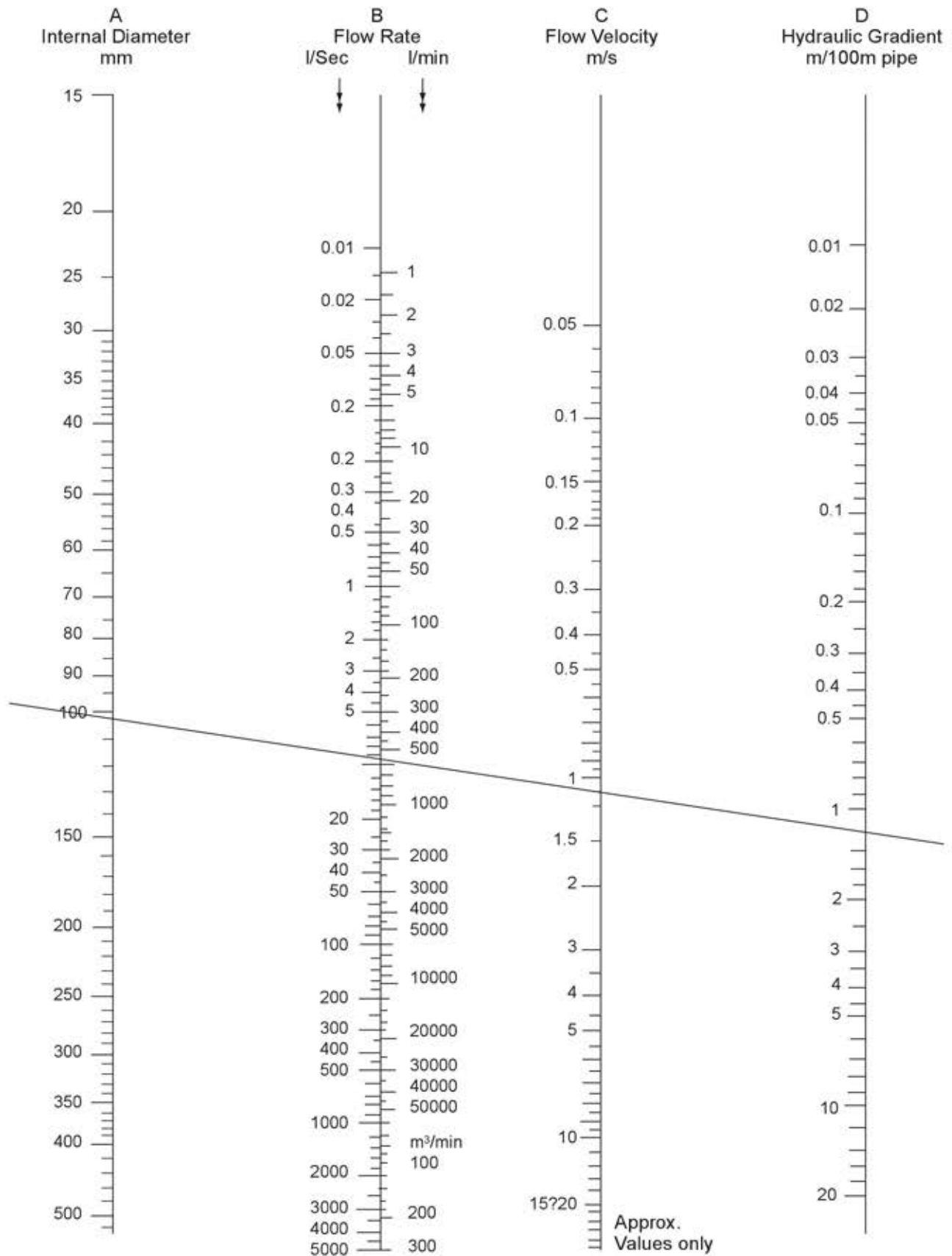
SIZE	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		4"		6"		SIZE
ID	0.622		0.824		1.049		1.380		1.610		2.067		2.469		3.068		4.026		6.065		ID
Flow GPM	Velocity FPS	PSI LOSS	Velocity FPS	PSI LOSS	Velocity FPS	PSI LOSS	Velocity FPS	PSI LOSS	Velocity FPS	PSI LOSS	Velocity FPS	PSI LOSS	Velocity FPS	PSI LOSS	Velocity FPS	PSI LOSS	Velocity FPS	PSI LOSS	Velocity FPS	PSI LOSS	Flow GPM
1	1.05	0.49	0.60	0.12	0.37	0.04	0.21	0.01	0.15	0.00	0.09	0.00									1
2	2.10	1.76	1.20	0.45	0.74	0.14	0.42	0.04	0.31	0.02	0.19	0.01									2
3	3.16	3.73	1.80	0.95	1.11	0.29	0.64	0.08	0.47	0.04	0.28	0.01	0.20	0.00							3
4	4.21	6.35	2.40	1.62	1.48	0.50	0.85	0.13	0.62	0.06	0.38	0.02	0.26	0.01							4
5	5.27	9.60	3.00	2.44	1.85	0.76	1.07	0.20	0.78	0.09	0.47	0.03	0.33	0.01	0.21	0.00					5
6	6.32	13.46	3.60	3.43	2.22	1.06	1.28	0.28	0.94	0.13	0.57	0.04	0.40	0.02	0.26	0.01					6
7	7.38	17.91	4.20	4.56	2.59	1.41	1.49	0.37	1.10	0.18	0.66	0.05	0.46	0.02	0.30	0.01					7
8	8.43	22.93	4.80	5.84	2.96	1.80	1.71	0.47	1.25	0.22	0.76	0.07	0.53	0.03	0.34	0.01					8
9	9.49	28.52	5.40	7.26	3.33	2.24	1.92	0.59	1.41	0.28	0.85	0.08	0.60	0.03	0.39	0.01					9
10	10.54	34.67	6.00	8.82	3.70	2.73	2.14	0.72	1.57	0.34	0.95	0.10	0.66	0.04	0.43	0.01					10
11	11.60	41.36	6.60	10.53	4.07	3.25	2.35	0.86	1.73	0.40	1.05	0.12	0.73	0.05	0.47	0.02	0.27	0.00			11
12	12.66	48.60	7.21	12.37	4.44	3.82	2.57	1.01	1.88	0.48	1.14	0.14	0.80	0.06	0.52	0.02	0.30	0.01			12
14	14.76	64.65	8.41	16.46	5.19	5.08	2.99	1.34	2.20	0.63	1.33	0.19	0.93	0.08	0.60	0.03	0.35	0.01			14
16	16.87	82.79	9.61	21.07	5.93	6.51	3.42	1.71	2.51	0.81	1.52	0.24	1.07	0.10	0.69	0.04	0.40	0.01			16
18	18.98	102.97	10.81	26.21	6.67	8.10	3.85	2.13	2.83	1.01	1.71	0.30	1.20	0.13	0.78	0.04	0.45	0.01			18
20			12.01	31.86	7.41	9.84	4.28	2.59	3.14	1.22	1.90	0.36	1.33	0.15	0.86	0.05	0.50	0.01			20
22			13.21	38.01	8.15	11.74	4.71	3.09	3.46	1.46	2.10	0.43	1.47	0.18	0.95	0.06	0.55	0.02			22
24			14.42	44.65	8.89	13.79	5.14	3.63	3.77	1.72	2.29	0.51	1.60	0.21	1.04	0.07	0.60	0.02			24
26			15.62	41.79	9.64	16.00	5.57	4.21	4.09	1.99	2.48	0.59	1.74	0.25	1.12	0.09	0.65	0.02			26
28			16.82	59.41	10.38	18.35	5.99	4.83	4.40	2.28	2.67	0.68	1.87	0.29	1.21	0.10	0.70	0.03			28
30			18.02	67.50	11.12	20.85	6.42	5.49	4.72	2.59	2.86	0.77	2.00	0.32	1.30	0.11	0.75	0.03	0.33	0.00	30
35					12.97	27.74	7.49	7.31	5.50	3.45	3.34	1.02	2.34	0.43	1.51	0.15	0.88	0.04	0.38	0.01	35
40					14.83	35.53	8.56	9.36	6.29	4.42	3.81	1.31	2.67	0.55	1.73	0.19	1.00	0.05	0.44	0.01	40
45					16.68	44.19	9.64	11.64	7.08	5.50	4.29	1.63	3.01	0.69	1.95	0.24	1.13	0.06	0.49	0.01	45
50					18.53	53.71	10.71	14.14	7.87	6.68	4.77	1.98	3.34	0.83	2.16	0.29	1.25	0.08	0.55	0.01	50
55							11.78	16.87	8.65	7.97	5.25	2.36	3.68	1.00	2.38	0.35	1.38	0.09	0.61	0.01	55
60							12.85	19.82	9.44	9.36	5.72	2.78	4.01	1.17	2.60	0.41	1.51	0.11	0.66	0.01	60
65							13.92	22.99	10.23	10.86	6.20	3.22	4.35	1.36	2.81	0.47	1.63	0.13	0.72	0.02	65
70							14.99	26.37	11.01	12.46	6.68	3.69	4.68	1.56	3.03	0.54	1.76	0.14	0.77	0.02	70
75							16.06	29.97	11.80	14.16	7.16	4.20	5.01	1.77	3.25	0.61	1.88	0.16	0.83	0.02	75
80							17.13	33.77	12.59	15.95	7.63	4.73	5.35	1.99	3.46	0.69	2.01	0.18	0.88	0.03	80
85							18.21	37.79	13.37	17.85	8.11	5.29	5.68	2.23	3.68	0.77	2.13	0.21	0.94	0.03	85
90							19.28	42.01	14.16	19.84	8.59	5.88	6.02	2.48	3.90	0.86	2.26	0.23	0.99	0.03	90
95									14.95	21.93	9.07	6.50	6.35	2.74	4.11	0.95	2.39	0.25	1.05	0.03	95
100									15.74	24.12	9.54	7.15	6.69	3.01	4.33	1.05	2.51	0.28	1.10	0.04	100
110									17.31	28.77	10.50	8.53	7.36	3.59	4.76	1.25	2.76	0.33	1.22	0.05	110
120									18.88	33.80	11.45	10.02	8.03	4.22	5.20	1.47	3.02	0.39	1.33	0.05	120
130											12.41	11.62	8.70	4.90	5.63	1.70	3.27	0.45	1.44	0.06	130
140											13.36	13.33	9.37	5.62	6.06	1.95	3.52	0.52	1.55	0.07	140
150											14.32	15.15	10.03	6.38	6.50	2.22	3.77	0.59	1.66	0.08	150
160											15.27	17.08	10.70	7.19	6.93	2.50	4.02	0.67	1.77	0.09	160
170											16.23	19.11	11.37	8.05	7.36	2.80	4.27	0.75	1.88	0.10	170
180											17.18	21.24	12.04	8.95	7.08	3.11	4.53	0.83	1.99	0.11	180
190											18.14	23.48	12.71	9.89	8.23	3.44	4.78	0.92	2.10	0.12	190
200											19.09	25.81	13.38	10.87	8.66	3.78	5.03	1.01	2.21	0.14	200
225													15.05	13.52	9.75	4.70	5.66	1.25	2.49	0.17	225
250													16.73	16.44	10.83	5.71	6.29	1.52	2.77	0.21	250
275													18.40	19.61	11.92	6.82	6.92	1.82	3.05	0.25	275
300															13.00	8.01	7.55	2.13	3.32	0.29	300
325															14.08	9.29	8.18	2.48	3.60	0.34	325
350															15.17	10.65	8.81	2.84	3.88	0.39	350
375															16.25	12.10	9.43	3.23	4.15	0.44	375
400															17.33	13.64	10.06	3.64	4.43	0.50	400
425															18.42	15.26	10.69	4.07	4.71	0.55	425
450															19.50	16.97	11.32	4.52	4.99	0.62	450
475																	11.95	5.00	5.26	0.68	475
500																	12.58	5.50	5.54	0.75	500
550																	13.84	6.56	6.10	0.89	550
600																	15.10	7.70	6.65	1.05	600

Note: Shaded areas of chart indicate velocities over 5 feet per second (FPS). Use with Caution.

Velocity of flow values are computed from the general equation $V = .408 \frac{Q}{d^2}$

Friction pressure loss values are computed from the equation $hf = 0.2083 \left(\frac{100}{C} \right)^{1.852} \frac{Q^{1.852}}{d^{4.868}} \times .433$ for psi loss per 100' of pipe

FLOW NOMOGRAM FOR POLYETHYLENE PIPES



Example: Flow 10 lps, Pipe size 110 mm OD (104mm ID), Velocity 1.2 m/s, Hydraulic Gradient 1.2 m/100m.

To use the above FLOW NOMOGRAM at least two values out of A, B, C, D should be known. Joining the two values on lines and extending the line henceforth will give the desired values.

AUSTRALIAN STANDARD POLYETHYLENE PIPE (ID) PRESSURE LOSS DATA

Flow rate Lts per sec.	Loss in Metres per 100M of pipe					
	10mm	13mm	16mm	19mm	25mm	32mm
0.02	1.0	0.3	0.1	N	N	N
0.04	3.5	1.1	0.4	0.2	N	N
0.06	7.4	2.3	0.8	0.4	N	N
0.08	12.6	4.0	1.4	0.6	0.1	N
0.10	19.1	6.0	2.2	0.9	1.2	N
0.12	26.7	8.4	3.1	1.3	0.3	N
0.14	35.6	11.2	4.1	1.8	0.4	0.1
0.16	45.5	14.3	5.2	2.3	0.5	1.2
0.18	56.6	17.8	6.5	2.8	0.7	0.3
0.20	68.8	21.6	7.9	3.4	0.8	0.3
0.22	82.1	25.8	9.4	4.1	1.0	0.4
0.24	96.4	30.3	11.0	4.8	1.2	0.5
0.26	-	35.2	12.8	5.5	1.3	0.5
0.28	-	40.3	14.7	6.4	1.5	0.6
0.30	-	45.8	16.7	7.2	1.8	0.8
0.35	-	60.9	22.2	9.6	2.3	1.0
0.40	-	78.0	28.4	12.3	3.0	1.2
0.45	-	97.0	35.3	15.3	3.7	1.3
0.50	-	-	42.9	18.6	4.5	1.5
0.60	-	-	60.1	26.1	6.3	2.2
0.70	-	-	80.0	34.7	8.4	2.9
0.80	-	-	-	44.4	10.8	3.7
0.90	-	-	-	55.1	13.4	4.6
1.00	-	-	-	67.1	16.3	5.6
1.10	-	-	-	80.0	19.5	6.6
1.20	-	-	-	94.0	22.9	7.8
1.40	-	-	-	-	30.4	10.4
1.60	-	-	-	-	39.0	13.2
1.80	-	-	-	-	48.4	16.5
2.00	-	-	-	-	58.9	20.0
2.50	-	-	-	-	89.0	30.3
3.00	Note : Shaded Area of chart Indicates Velocities over 1.5 m /sec. Use with caution.			-	-	42.4
3.50				-	-	56.4
4.00				-	-	72.2

FRICTION LOSS CHARACTERISTICS 4mm - MICRO TUBE

METRIC

Friction Loss Characteristics

O.D. 0.220"

I.D. 0.160"

Friction Loss Characteristics

O.D. 6 mm

I.D. 4mm

Flow	Velocity	psi	Flow	Velocity	Bars
GPH	fps	Loss	l/h	m/s	Loss
1	0.27	0.16	3,79	0,08	0,04
2	0.53	0.59	7,57	0,16	0,13
3	0.80	1.24	11,36	0,24	0,28
4	1.06	2.12	15,14	0,32	0,48
5	1.33	3.20	18,93	0,41	0,72
6	1.59	4.49	22,71	0,48	1,01
7	1.86	5.97	26,50	0,57	1,35
8	2.13	7.64	30,28	0,65	1,73
9	2.39	9.50	34,07	0,73	2,15
10	2.66	11.54	37,85	0,81	2,61
11	2.92	13.79	41,64	0,89	3,11
12	3.19	16.17	45,42	0,97	3,65
13	3.45	18.75	49,21	1,01	4,24
14	3.72	21.50	52,99	1,10	4,86
15	3.98	24.43	56,78	1,17	5,52
16	4.25	27.53	60,56	1,33	6,22
17	4.52	30.80	64,35	1,38	6,96
18	4.78	34.23	68,13	1,46	7,74
19	5.05	37.83	71,92	1,54	8,55
20	5.31	41.60	75,70	1,62	9,40
21	5.58	45.53	79,49	1,70	10,29
22	5.84	49.62	83,27	1,78	11,21
23	6.11	53.87	87,06	1,86	12,17
24	6.38	58.29	90,84	1,94	13,17
25	6.64	62.86	94,63	2,02	14,21
26	6.91	67.59	98,41	2,11	15,27
27	7.17	72.48	102,20	2,19	16,38
28	7.44	77.52	105,98	2,27	17,52
29	7.70	82.72	109,77	2,35	18,69
30	7.97	88.08	113,55	2,43	19,91

psi Loss Per 100 Feet of Pipe (psi/100ft.) C=150

Bars Loss Per 100 Meters of Pipe (Bars/100m)

Note: Use of tubing at flows shown below the dotted line is not recommended, as velocities exceed 5 ft./sec. (1,5 m/s)

Formula for the calculation of the pressure loss.

To assist in the calculation and preparation of irrigation systems it is important to know the pressure loss in each line. There are many methods, computers and graphs for this purpose. These are two formulas to assist in these calculations.

Example:

HAZEN-WILLIAMS equation

$$\Delta H = 1,1561 \times 10^6 \times (Q^{1.852} / D^{4.871}) \times L$$

Where ΔH = Head loss in meters

- Q = Flow in liters per second
- D = Internal diameter of the tube in mm.
- L = Length of the tube in meters

De Marchi Marchetti equation

$$\Delta H = \sqrt[0.552]{88913 \frac{Q}{D^{2.65}}}$$

where ΔH = Head loss in meters per 100 meters

- Q = Flow in liters per second
- D = Internal diameter of the tube in mm.

When there are multiple drippers or sprinklers on the line at a constant distance; it is possible to apply a corrective factor (F) to correct the loss in the line.

No. of drippers sprinkler in the line	(F) factor	No. of drippers sprinkler in the line	(F) factor
1	1,000	16	0.365
2	0,625	17	0.363
3	0,518	18	0.361
4	0,469	19	0.360
5	0,440	20	0.359
6	0,421	22	0.357
7	0,408	24	0.355
8	0,398	26	0.353
9	0,391	28	0.351
10	0,385	30	0.350
11	0,380	35	0.347
12	0,376	40	0.345
13	0,373	50	0.343
14	0,370	100	0.338
15	0,367	>100	0.333

Example:

Supposing a lateral, 120 meters long of 35mm (internal diameter) tube; 7 sprinklers are inserted on the line, each with a Flow of 15 l/min. Therefore the overall flow is 105 l/min (1.75 l/sec).

Using the HAZEN WILLIAMS equation we have the following

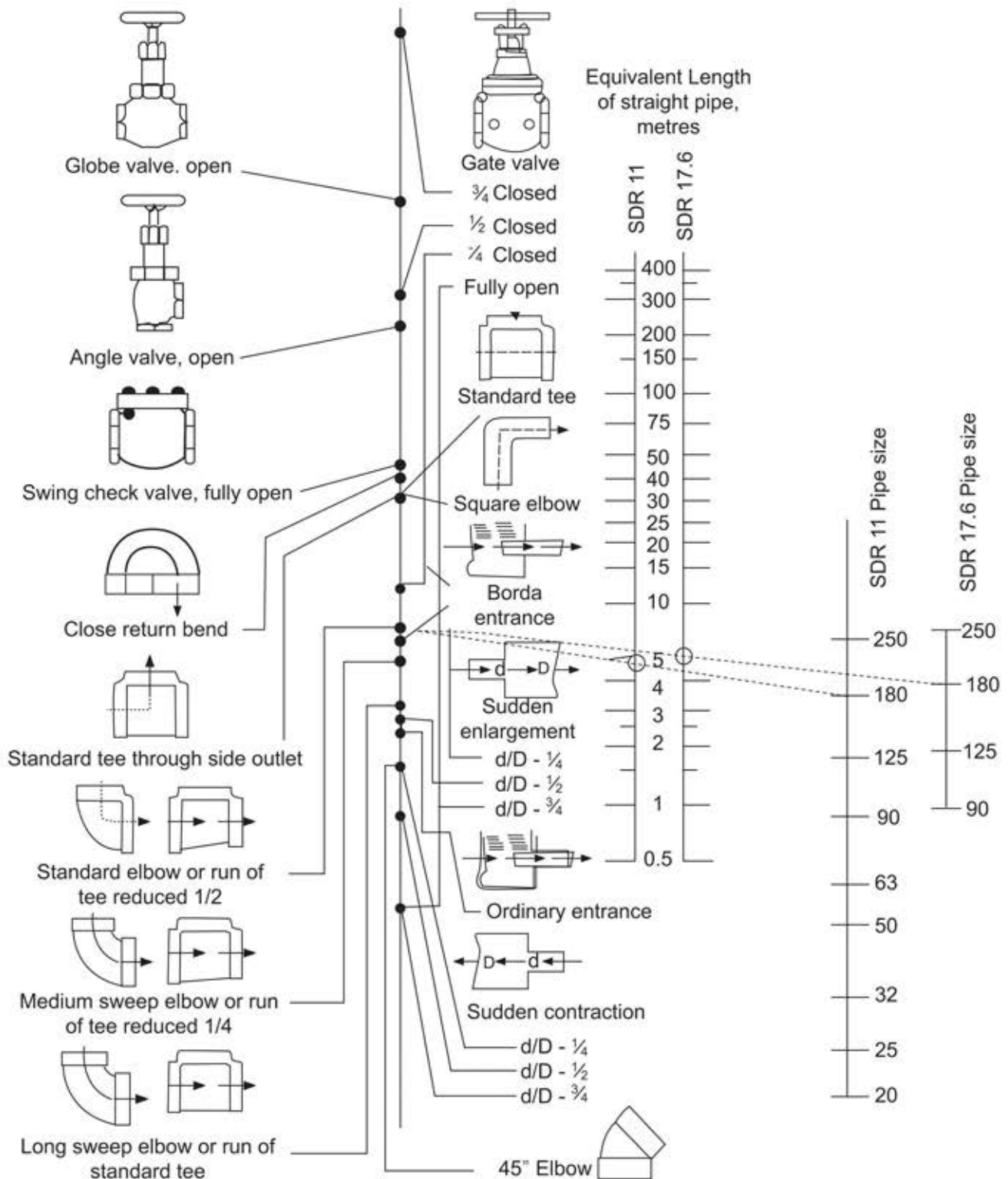
- Q = 1.75 L/S
- D = 35 mm
- L = 120 m

making the calculation we find that $\Delta H = 11.57$ m.

Making use of the above table we see that if there are 7 outlets in the line we need to use a F factor of 0.408. Therefore: $11.57 \times 0.408 = 4.72$ meters.

This being the difference in pressure between the inlet point and the end of the tube.

RESISTANCE OF VALVES AND FITTINGS TO FLOW OF FLUIDS



EXAMPLE: The dashed line shows the resistance of a 180 mm standard elbow in equivalent lengths of 780 mm SDR 11 pipe (≈ 4.7 metres of pipe).

The chain dotted line shows the resistance of a 180 mm standard elbow in equivalent lengths of 180 mm SDR 17.6 pipe (≈ 5.0 metres of pipe).

NOTE: For sudden enlargements of sudden contractions use the smaller diameter, d on the pipe-size scale. Head loss through check valves varies with types manufactured. Consult with manufacturer for correct values.

DESIGN DATA

Conversion Table

FROM IMPERIAL TO METRIC

MULTIPLY BY THE
NUMBER INDICATED

	TO CONVERT	TO	
	length		
0.03937	Inches (in)	(mm)	25.4
3.2808	feet (ft)	(m)	0.3048
1.094	yards (yd)	(m)	0.9144
0.6214	Statute miles (miles)	(km)	1.6093
0.5369	nautical miles - Knots (K)	(km)	1.853
12	inches	feet	0.083
3	feet	yards	0.833
	area		
0.155	sq. inches (sq. in.)	(cm ²)	0.4516
10.764	sq. feet (sq. ft)	(m ²)	0.0929
1.196	sq. yards (sq. yd.)	(m ²)	0.8361
2.471	acres (a)	(ha)	0.406
0.38671	sq. miles	(km ²)	2.59
144	sq. inches	sq. feet	0.00694
9	sq. feet	sq. yards	0.1111
	velocity		
196.8	feet/minute	(m / s)	0.0051
	volume		
0.06102	cubic inches	(cm ³)	16.39
35.31	cubic feet (sq. ft)	(m ³)	0.0283
1.3087	cubic yards	(m ³)	0.7641
61.017	cubic inches	(l)	0.0164
0.0353	cubic feet	(l)	28.32
0.2642	U.S.A gallons (gals)	(l)	3.785
264.2	U.S.A gallons (gals)	(m ³)	0.00374
0.220	imperial gallons (gals)	(l)	4.546
2.113	pints	(l)	0.473
1.76	pints	(l)	0.568
1.0571	quarts usa	(l)	0.946
0.880	quarts q.b.	(l)	1.135
0.832	gallons g.b.	gallons usa	1.201
1.728	cubic inches	cubic feet	0.000579
27	cubic feet	cubic yards	0.037
0.1337	cubic feet	gallons	7.481
	weight		
0.03527	ounces (ozs)	(gr)	28.3495
2.205	pounds ivdp (ibs)	(kg)	0.4536
0.984	tons (t)	(t)	1.016
0.0625	pounds (lbs)	ounces (ozs)	16
	flow		
2.12	cubic feet per minute (cubic ft. / min.)	(l / s)	0.472
0.125	gallons per minute (gpm)	(l / s)	0.06308
0.264	gallons per minute (gpm)	(l / min.)	3.785
0.0785	cubic yards / minute	l / s	12.74
0.2976	cubic yards / minute	gallons / second	3.36
2.222	cubic yards / minute	gallons feet / second	0.45
0.00223	cubic yards / second	gallons per minute	448.831
0.125	gallons per minute	cubic feet / hour	8.0208
	pressure		
14.69	pounds square inches (p.s.i.)	(atm)	0.06804
14.223	p.s.i.	(kg / cm ²)	0.0703
0.2048	pounds square feet (ibssq.ft)	(kg / cm ²)	4.8824
1.01325	bar	(atm)	0.98692
1.033	(kg / cm ²)	(atm)	0.968
	* 1 bar = 75.01 on mercury; 1 atm = 76 cm mercury		
	force+energy		
7.2327	foot pounds	(kgm)	0.13826
0.7376	foot pounds	(joule / =j)	1.3558
3.968	btu = british therat unit	calorie = (cal)	0.252
0.3686	btu per sq. ft	calorie / m ²	2.713
42.41	btu per minute	hp (horse power)	0.02356
0.7457	kw	hp	1.341
1.0139	cv	hp	0.9863
0.736	kw	cv	1.358
	specific weight		
0.036	pounds / cubic inches (lps / cm in.)	(g / cm ³)	27.68
0.06242	pounds / cubic feet (lbs / cm ft.)	(kg / m ³)	16.02

↑
MULTIPLY THE VALUE INDICATED
TO CONVERT
FROM IMPERIAL TO METRIC

Company policy is one of constant improvement and therefore changes of specifications may be made without notice and incurring liability

Conversion Table

Pressure, liquid head, stress

Enter at left hand column and read horizontally

	kPa	lbf/in ² (PSI)	kgf/cm ²	ftH ₂ O	mH ₂ O	inHg	mmHg
kPa	1	0.145	0.0102	0.335	0.102	0.295	7.501
lbf/in ² (PSI)	6.895	1	0.0703	2.307	0.703	2.036	51.71
kgf/cm ²	98.067	14.22	1	32.808	10.0	28.96	735.6
ftH ₂ O	2.984	0.433	0.0305	1	0.305	0.881	22.38
mH ₂ O	9.789	1.42	0.1	3.28	1	2.896	73.55
inHg	3.386	0.491	0.035	1.135	0.346	1	25.4
mmHg	0.133	0.019	0.0014	0.045	0.014	0.039	1
100kPa = 1 bar = 0.1 Mpa = 0.1N/mm ²							
100kPa = 14.5 psi							
Other conversion factors							
length							
1 in	=25.4mm		1 mm	=0.039 37 in			
1 ft	=0.3048m		1 m	=3.280 84 ft			
	=304.8mm						
area							
1 in ²	=645.16mm ²		1 mm ²	=0.00155 in ²			
1 ft ²	=0.0929m ²		1 m ²	=10.7639 ft ²			
1 hectare	=2.471054 acres						
	=10,000 m ²						
1 km ²	=0.3861 mile ²						
volume							
1 US gal	=3.785 L		1 L	=0.2642 US gal			
1 imp gal	=4.5461 L			=0.2200 imp gal			
1 in ³	=16387mm ³		1 mm ³	=61 x 10.6 in ³			
1 ft ³	=0.0283m ³		1 m ³	=35.3147ft ³			
velocity, speed							
1 ft/s	=0.3048 m/s		1 m/s	=3.280 84ft/s			
1 mile/h	=1.609 344 km/h			=2.236 94 mile/h			
	=0.447 04 m/s		1 km/h	=0.621 371 mile/h			
acceleration							
1 ft/s ²	=0.3048 m/s ²		1 m/s	=3.280 84ft/s ²			
flow							
1 US gal/min	=0.063 L/s		1 L/s	=15.85 US gal/min			
	=63.0915 X 10 ⁶ m ³ /s		1 m ³ /s	=15850 US gal/min			
	=0.2271m ³ /h		1 m ³ /h	=4.403 US gal/min			
1 imp gal/min	=0.076 L/s		1 L/s	=13.2 imp gal/min			
	=0.2728 m ³ /h		1 m ³ /h	=3.666 imp gal/min			
1 ft ³ /min	=0.472 L/s		1 L/s	=2.1189 ft ³ /min			
	=1.699 m ³ /h		1 m ³ /h	=0.5886 ft ³ /min			
mass							
1 lb	=0.454 kg		1 kg	=2.205 lb			
1 ton	=1.0160 t		1 t	=0.9842 ton			
1 ounce, troy	= 31.103 grams						
mass per unit length							
1 lb/ft	=1.488 kg/m		1 kg/m	=0.672 lb/ft			
mass per unit area							
1 lb/ft ²	=4.882 43 kg/m ²		1 kg/m ²	=0.204816 lb/ft ²			
1 oz/yd ²	=33.9057 g/m ²		1 g/m ²	=0.029 494 oz/yd ²			
1 oz/ft ²	=305.152 g/m ²			=0.003 277 06 oz/ft ²			
density (mass/unit volume)							
1 lb/ft ³	=16.0185 kg/m ³		1 kg/m ³	=0.062 428 lb/ft ³			
1 lb/yd ³	=0.593 278 kg/m ³			=1.685 56 lb/yd ³			
1 ton/yd ³	=1.328 94 t/m ³		1 t/m ³	=0.752 48 ton/yd ³			
mass per unit time							
1 lb/s	=0.453 592 kg/s		1 kg/s	=2.204 62 lb/s			
1 ton/h	=1.016 05t/h		1 t/h	=0.984 207 ton/h			
force							
1 lb force	=4.448 N		1 N	=0.225 lb force			
	=0.0044 kN		1 kN	=224.81 lb force			
1 kg force	=9.807 N		1 N	=0.102 kg force			
	=0.0098 kN		1 kN	=101.97 kg force			
torque							
1 lbf.ft	=1.3558 N.m		1 N.m	=0.7376 lbf.ft			
1 kgf.m	=9.8067 N.m			=0.10197 kgf.m			
temperature							
°F	= ⁹ / ₅ °C+32		°C	= ⁵ / ₉ (°F+32)			
				=K-273.15			
thermal expansion							
1 in/ft	=83.33 mm/m		1 mm/m	=0.012 in/ft			
work, energy, heat (1j=1W.s)							
1 kWh	=3.6 MJ		1 MJ	=0.277 778 kWh			
1Btu	=1.055 06 kJ		1 kJ	=0.947 817 Btu			
	=1055 06 J						
1ft.lbf	=1.355 82 J		1 J	=0.737 562 ft.lbf			
power, heat flow rate							
1 hp	=0.745 700 kW		1 kW	=1.341 02 hp			
	=745.700 W		1 W	=3.412 14 Btu/h			
1 Btu/h	=0.293 071 W			=0.737 562 ft.lbf/s			
1 ft.lbf/s	=1.355 82 W						
intensity of heat flow							
1 Btu/(ft ² h)	=3.154 59 W/m ²		1 W/m ²	=0.316 998 Btu/(ft ² h)			
thermal conductance (c value)							
1 Btu/(ft ² h °F)	=5.678 26 W/(m ² k)		1 W/(m ² k)	=0.176 110 Btu/(ft ² h °F)			
thermal conductance (k value)							
1 Btu/(ft h °F)	=1.730 73 W/(m k)		1 W/(m k)	=0.577 789 Btu/(ft h °F)			
calorific value							
1 Btu/lb	=2.326 kJ/kg		1 kJ/kg	=0.429 923 Btu/lb			
1 Btu/ft ³	=37.2589 kJ/m ³		1 kJ/m ³	=0.026 839 Btu/ft ³			
thermal capacity							
1 Btu/lb °F)	=4.1868 kJ/(kg.k)		1 kJ/(kg.k)	=0.238 846 Btu/(lb °F)			
1 Btu/ft ³ °F)	=67.1066 kJ/(m ³ k)		1 kJ/(m ³ k)	=0.014 910 7 Btu/(ft ³ °F)			

NOTES

Handwriting practice lines consisting of multiple rows of dashed lines on a lined background, designed for tracing and letter formation.

NOTES

NOTES

Sales Branches

Location	P.O BOX	Telephone Number	Fax Number	Mobile Number	Name
Buraidah (Head Office)	124	0163821901	0163811203		بريدة (المكتب الرئيسي)
Buraidah (Main Branch)	124	0163816658	0163811306	0506420914	بريدة (الفرع الرئيسي)
Buraidah (AlMuwattah)	124	0163249419	0163257076	0506390297	بريدة (الموظاء)
Dammam	8893	0138171375	0138176347	0506419643	الدمام
Hail	2393	0165435219	0165322138	0553175424	حائل
Hafouf		0135825534	0135825634	0500527039	الهفوف
Jeddah	6963	0126654536	0126657473	0500526883	جدة
Jizan (Sabia)	112	0173274880	0173274883	0504898933	جيزان
Jouf	1083	0146244076	0146246840	0504896500	الجوف
Kharj	1606	0115501616	0115510458	0555837887	الخرج
Meddina	250	0148457277	0148461493	0553140279	المدينة
Najran	1317	0175440611	0175441986	0554356664	نجران
Onaizah	1509	0163610128	0163610128	0506418763	عنيزة
Riyadh Main Branch	21599	011- 4508431/32	0114508422	0500590147	الرياض (فرع الرئيسي)
Riyadh Salam Street	21599	01141114679	0114111914	0555029930	الرياض (شارع السلام)
Tabuk	2008	0144211389	0144288374	0500809917	تبوك
Taif	7042	0127402179	0127402179	0506403967	الطائف
Wadi AlDawasir	525	0117845051	0117845051	0506314021	وادي الدواسر
Zulfi	725	0164224927	0164223421	0554339071	الزلفي
Qaryah Alulaya		0133861225	0133861960	0555175623	قرية العليا
Khamis Musheet		0172371622	0172371260	0502964282	خميس مشيط
International Branches					
EXPORT	51422	016-3228545-EXT 4423	0163220701	0506375685	تصدير
U.A.E	48980	00971-4-2668040	00971-4-2668035	00971-506117612	الإمارات
Egypt			002-01062900600	002-01090252126	مصر
Oman			00968-71744949	00968-71744949	عمان



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