

ARILI DRIP IRRIGATION PIPES

for

Greenhouse and Agricultural Applications



Drip Irrigation is giving the necessary water and soluble nutrients at the time when it is required and amount needed to the root area of the plant as drips in a controlled way. In drip irrigation method, water is given frequently and in low amounts. Irrigation should begin before the earth loses its humidity and enough water for one day or couple days should be given to the plant. By this way, water stress that was happened because of lack of humidity in the earth or too much humidity will be prevented on the plant. Water will be given to the area where the plant roots will be grown up by drip irrigation method. By this way, high productive and quality products will be obtained from the good developed plant.



The Advantages of Drip Irrigation System

- ✓ **Uniformity of Water Application:** All the parts of the land receive the same amount of water and results in saving of water, power, and fertilizer.
- ✓ **Water Placement:** The water and nutrients are virtually hand-fed directly into the root of the plant, thus roads and rows between the plants remain dry and has major advantage in harvesting.
- ✓ **Improved Disease Control:** Disease control is enhanced in micro irrigation.
- ✓ **Difficult Terrain:** Difficult soil terrain condition can be overcome.
- ✓ **Water Conservation:** Water transmission losses are eliminated.
- ✓ **Chemical Application Efficiency:** Fertilizer and other chemicals are effectively applied into the root zone where they are needed.
- ✓ **Improved Tolerance to Salinity:** Concentration of salt is reduced and salts are moved away from the plant to the edges of the root zone.
- ✓ **Energy:** Significantly low operating pressure consumes relatively less energy.
- ✓ **Increased Field:** Soil moisture is maintained at field capacity to achieve maximum yield.
- ✓ **Improved Quality:** Slow regular and uniform application of water and nutrients result in even growth and ripening, producing a more uniform crop of a more consistent quality.
- ✓ **Reduced Labor Costs:** Labor requirements for micro irrigation systems are low because the low application rates allow larger areas to be irrigated to a time, and because these systems lend themselves to automation also to direct savings in labor.
- ✓ **Saving in Weed Control:** Saving of up to 35% of cost of weeding is possible because of accurate placement of micro irrigation.

Elements of Drip Irrigation System

Drip Irrigation System is formed in order by pumping unit, filtering unit, main pipe line, manifold (subsidiary) pipe lines, lateral drip pipe lines..

Water Source: Any kind of water source can be used in drip irrigation method. But there should not be too much sand, sediment and floating objects in the water. And also water which contains too much calcium, magnesium, and iron compounds is not suitable for drip irrigation method.

Pumping Unit: The operating pressure can be supplied by pump unit where the water source is not enough high positioned. Centrifugal, deep well or diver kind of pumps can be used depending on the type of water source.

Filtering Unit: In drip irrigation, water is should be filtered very well before giving to the system. Otherwise, the drippers will be blocked. This treatment will be done by filtering unit. The pressure and amount of water given to the system will be also checked and soluble nutrients will be given to the water at filter unit.

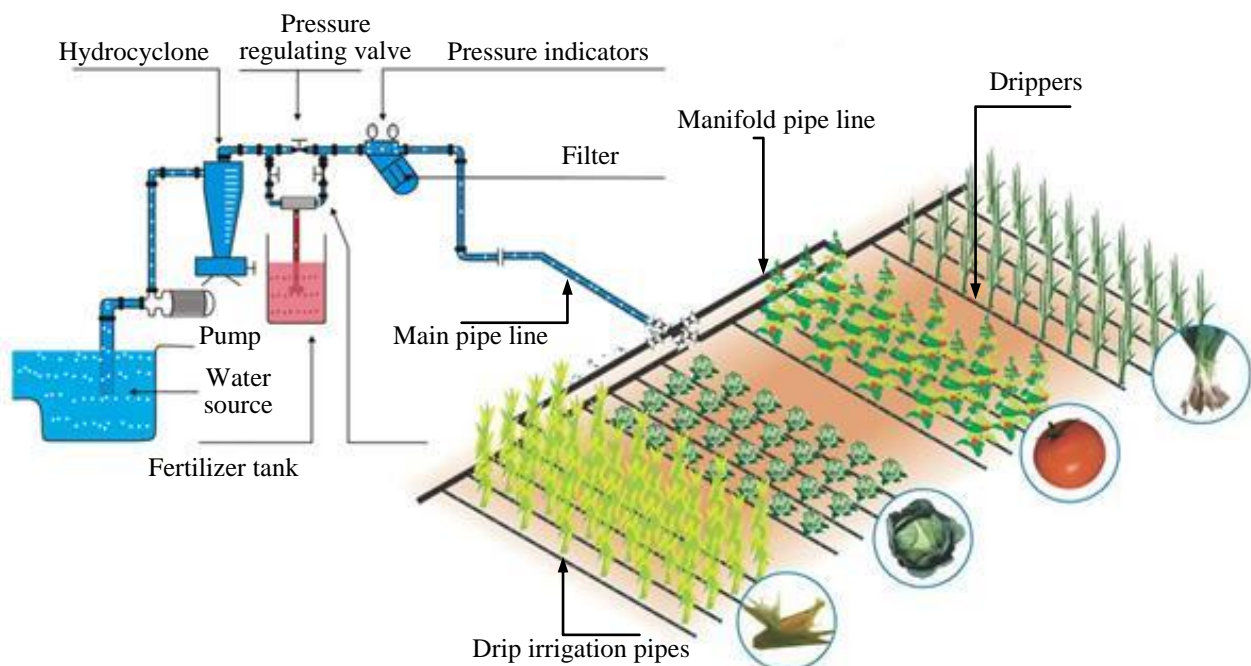
There are hydrosiklon filter, gravel filter, fine sieve filter, manure tank, flow-pressure measurement and arrangement items in filter unit.

Main Pipe Line: It transmits the water, which is taken from the source and passed from filter unit, to manifold pipe lines. Generally HDPE pipes are used. They can be buried if necessary.

Manifold (subsidiary) Pipe Line: It transmits the water from main line to laterals (drip irrigation pipes). They are also produced by HDPE pipes as the main pipe lines.

Drip Irrigation Pipe (Lateral) Lines: They are produced specially and put drippers on them at the factories. These pipes which have drippers inside or outside are made of flexible polyethylene.

Drippers: These are the most critical elements of the system transmitting irrigation water to earth with low pressure and controlled very low flow rate. Drippers are produced in two ways: on-line (inside the pipe) and off-line (outside of the pipe)



ARILI Flat Type Drip Irrigation Pipes

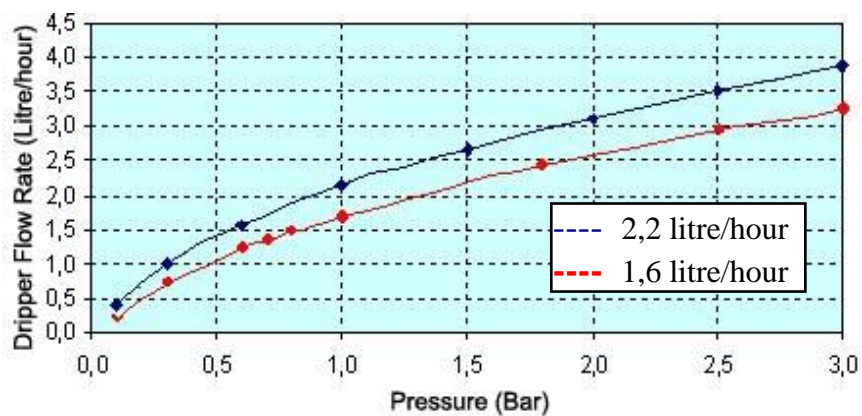


They are produced in two lateral diameters as 17 mm and 22 mm. They are ideal and economical where planting is in lines as vegetable, field plants, vineyard, fruits and other years old plants. Different dripper distances can be produced according to the plant line spaces. (20 – 25 – 30 – 40 – 50 – 60 – 75 - 100 cm)

High uniformity can be obtained with the special design and drippers with latest production technology giving the Coefficient of Variation (C_v) less than 5%.

The dripper flow rates are produced as 1,2 - 1,6 - 2,2 and 3,2 lt/h with wide canals and high blocking resistant.

Drip pipes are produced in different thickness ranges in order to supply one year or many years usage. (06 – 08 – 10 – 12 – 15 – 18 – 24 - 36 mil) Setting and collecting on the field is very easy.



Ø17 mm ARILI Flat Drip Irrigation Pipes Lateral Lengths (@ 10% flow difference)

1,6 lt/h @ 1 bar	Dripper Distance						
	20 cm	30 cm	40 cm	50 cm	60 cm	75 cm	100 cm
	Lateral Length (m)						
2	61	77	82	84	112	106	115
1	72	104	108	120	144	154	162
0	85	130	155	175	190	215	245
-1	96	146	181	212	241	268	312
-2	105	155	203	246	267	282	151

2,2 lt/h @ 1 bar	Dripper Distance						
Slope (%)	20 cm	30 cm	40 cm	50 cm	60 cm	75 cm	100 cm
	Lateral Length (m)						
2	56	60	71	77	82	93	100
1	63	75	86	96	110	137	145
0	70	105	125	145	165	185	220
-1	78	110	142	162	221	246	310
-2	85	115	156	181	245	266	121

3,4 lt/h @ 1 bar	Dripper Distance						
Slope (%)	20 cm	30 cm	40 cm	50 cm	60 cm	75 cm	100 cm
	Lateral Length (m)						
2	38	47	55	63	69	77	96
1	40	53	65	74	83	93	109
0	45	60	75	85	100	114	136
-1	50	65	80	98	114	138	168
-2	55	70	90	108	126	152	197

Ø22 mm ARILI Flat Drip Irrigation Pipes Lateral Lengths (@ 10% flow difference)

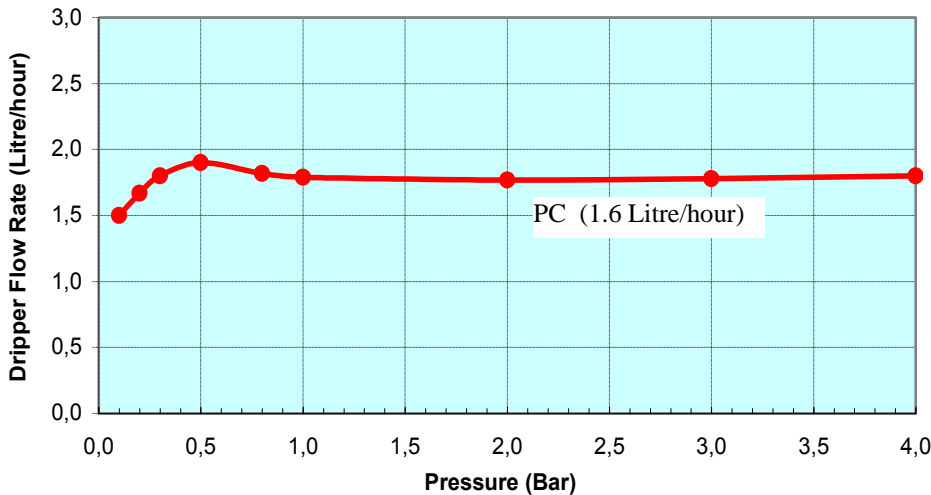
1,6 lt/h @ 1atm	Dripper Distance						
Slope (%)	20 cm	30 cm	40 cm	50 cm	60 cm	75 cm	100 cm
	Lateral Length (m)						
2	80	90	95	95	100	105	100
1	105	125	140	155	160	170	175
0	145	185	220	275	300	360	425
-1	175	250	300	355	410	515	500
-2	200	280	180	135	115	110	110

2,2 lt/h @ 1 bar	Dripper Distance						
Slope (%)	20 cm	30 cm	40 cm	50 cm	60 cm	75 cm	100 cm
	Lateral Length (m)						
2	80	95	100	100	95	95	100
1	95	125	135	140	145	165	170
0	115	155	185	220	250	280	320
-1	135	185	210	250	305	380	450
-2	150	200	240	305	285	170	150

Note: 3,4 lt/h test results are not available yet.

ARILI Pressure Compensated Flat Drip Irrigation Pipes

ARILI branded drip irrigation pipes are produced in two different diameters as 16 mm and 20 mm. It drips the same amount of water through all of its drippers thanks to its special pressure compensated drippers with wide canals and high turbulence water flows. It can be used safely on ground applications and sloping areas. Dripper is working in safely between 0.5 – 4.3 bar. They can be produced in 24 – 36 - 39 mil thicknesses and 1,2 - 1,6 - 2,1 and 3,4 lt/h flow according to any years usage.



Pressure Compensated Flat Drip Irrigation Pipes Lateral Lengths (m) (@ 2.5 Bar Input Pressure)

Ø16mm	Dripper Distance (cm)						
	20 cm	30 cm	40 cm	50 cm	60 cm	75 cm	100 cm
Dripper Flow Rate (Lt/h)	Lateral Length (m)						
1,2	171	229	279	325	367	426	515
1,6	142	190	232	270	305	355	429
2,1	119	160	194	227	256	297	360
3,4	87	116	142	166	188	219	265

Ø20mm	Dripper Distance (cm)						
	20 cm	30 cm	40 cm	50 cm	60 cm	75 cm	100 cm
Dripper Flow Rate (Lt/h)	Lateral Length (m)						
1,2	231	303	366	422	475	549	660
1,6	192	252	304	351	395	457	549
2,1	161	211	255	295	332	384	462
3,4	118	155	187	217	244	282	340

ARILI Sub-Surface Pressure Compensated Flat Drip Irrigation Pipes

Sub-surface drip irrigation (SDI) uses permanently or temporarily buried drip pipe located at or below the plant roots. They are produced in two lateral diameters as 16 mm and 20 mm. It drips the same amount of water through of its drippers in all pressure levels thanks to its special pressure compensated drippers. It can be used safely in sub-surface applications and has anti-siphon mechanism with drippers that prevent root entrance. Dripper is working in safely between 0,5 - 4,3 bar. They can be produced in 24 – 36 - 39 mil thicknesses and 1,2 - 1,6 - 2,1 and 3,4 lt/h flow rates according to many years usage.



Sub-Surface Pressure Compensated Flat Drip Irrigation Pipes Lateral Lengths (m) (@ 2,5 Bar Input Pressure)

Ø16mm	Dripper Distance (cm)						
	20 cm	30 cm	40 cm	50 cm	60 cm	75 cm	100 cm
Dripper Flow Rate (Lt/h)	Lateral Length (m)						
1,2	171	229	279	325	367	426	515
1,6	142	190	232	270	305	355	429
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