

# ERHAS<sup>®</sup>

IRRIGATION SYSTEMS

*Dream of water...*



SPRINKLER IRRIGATION

DRIP IRRIGATION



FILTER SYSTEMS

COMPRESSION FITTINGS



CLAMP SADDLES

[www.erhas.com](http://www.erhas.com)

**PRODUCT CATALOG**

# ERHAS®

IRRIGATION SYSTEMS

*Dream of water...*



erhas.com

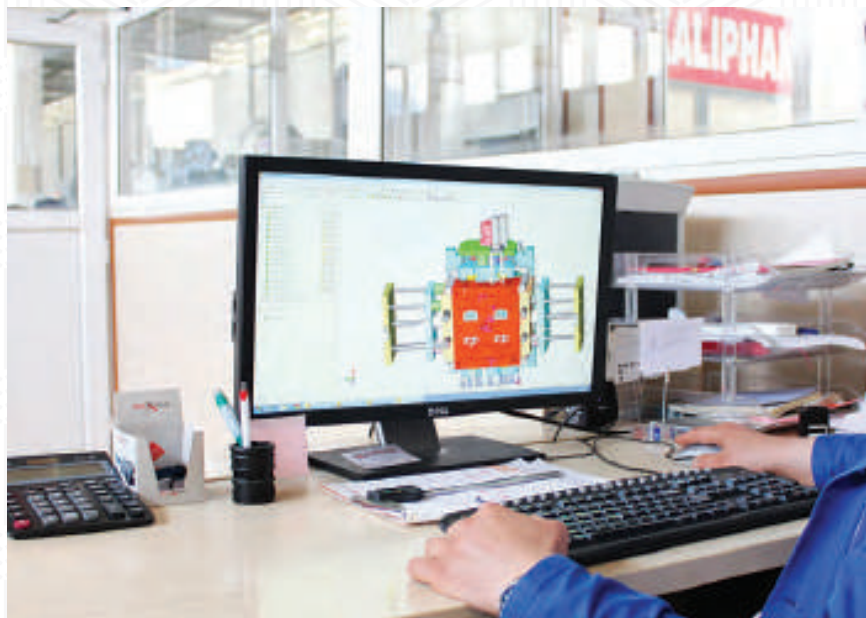


TURKISH  
PATENT  
INSTITUTE



The International Patent System







Erhas Pipe and Machinery Equipments Industry Inc. has been producing “Pressured Irrigation Systems” which are the need of the agriculture sector since 1995.

Taking place among the leading companies of our country and the world in its sector, our company carries out works on the usage, dissemination and development of the pressured irrigation systems in our country and in the world with the products it produces. While our company conveys their products to our farmers who are the final consumers via the distributorship network that they have constituted in Turkey, it also takes its place in the world market through the partners, distributors and representatives in many countries.

Increasing its product range day by day, our company has led to many innovations at the end of the activities performed in the R&D department that it has constituted to produce new products related to the irrigation sector and develop the existing products. Our company has many utility model, design registrations and patent certificates concerning the innovations it has achieved. Our company who has the widest production range in Turkey also produces the necessary molds for our own production in the molding production plant it has established in 2010.

Increasing its domestic and foreign country market shares with its existing and new developed products every passing day, our company shows a maximum effort to make the products it has put into production schedule be in the demanded position both in domestic and foreign countries. Carrying out production with ISO 9001 – 2008 Effective Quality Management System it owns, our company trains its employees with OHSAS 18001 – Occupational Health and Security Management System in every stage of the process starting from the raw material concerning the products it produces, bringing into the final product and until offering to the customers. This is an important indicator of our company’s sensibility to the human being and environment.

**Our Vision;** is to be the leader in the customer preferences in Turkey and in the world with the products we produce under the light of our management and production strategies we have constituted within the framework of our basic quality policy.

**Our Mission;** is to create a safe, peaceful, transparent, democratic and profitable atmosphere working professionally in the frame of a team philosophy with its employees, customers, product and service providers and to provide their sustainability.

**Our Basic Values;** are determined to be honesty, reliability, legal and ethical working, customer orientation, quality, responsibility, confidentiality, innovativeness, being competitive and the team work.

Therefore, Erhas is an advanced and distinguished corporation in Turkey and in the world.





# 06

## SPRINKLER IRRIGATION



**08** GENERAL INFORMATION ABOUT SPRINKLER IRRIGATION

---

**10** SPRINKLER PIPES WITH PLASTIC LATCH AND ACCESSORIES

---

**20** SPRINKLERS

---

**21** GENERAL INFORMATION ABOUT SPRINKLERS

---

**22** SPRINKLERS AND ACCESSORIES

---

**31** SPRINKLER SYSTEMS INSTALLATION SCHEMES

---



**34** GENERAL INFORMATION ABOUT DRIP IRRIGATION

---

**36** ROUND DRIP IRRIGATION PIPES

---

**41** FLAT DRIP IRRIGATION PIPES

---

**46** DRIP IRRIGATION PIPE ACCESSORIES

---

# 32

## DRIP IRRIGATION

# 60

## FILTER SYSTEMS



**62** GENERAL INFORMATION ABOUT FILTERS

---

**64** PLASTIC FILTERS

---

**70** PLASTIC FILTERS TECHNICAL DRAWINGS

---

**71** PLASTIC FILTERS FLOW ANALYSIS

---

**72** Y TYPE PLASTIC FILTERS

---

**74** Y TYPE PLASTIC FILTERS FLOW ANALYSIS AND TECHNICAL DRAWINGS

---

**75** PLASTIC FILTER CARTRIDGES

---



**78** ASSEMBLY METHOD OF COMPRESSION FITTINGS

**79** GENERAL INFORMATION ABOUT COMPRESSION FITTINGS

**82** BLACK SERIES

# 76

**NEW GENERATION  
COMPRESSION FITTINGS**

# 88

**CLAMP SADDLES**



**90** GENERAL INFORMATION ABOUT CLAMP SADDLES

**92** CLAMP SADDLES

LOADING DETAILS

# 94

# CONTENTS





High Chemical and Mechanical Resistance •

Excellent Hardness / Toughness Balance •

Ideal Design •

**PATENTED**







# SPRINKLER IRRIGATION



- Impact Resistant, Sun-Proof, Shatter-Proof Pipe.
- Resistant to Corrosion.
- Resistant to Microorganisms and Rodents.
- Possibility of Easy Installation Under all Kinds of Terrain Conditions.
- Ease of Carrying and Assembly.
- Water-Proof Safe Gasket System Which Eliminates Water-Loss.
- Providing of Full Compliance With the Other Sprinkler Irrigation Systems.



TS EN 12201-2+A1



TS ISO 9625

- The Diameter Range is Between Ø50 mm and Ø160 mm.
- 5 Meters and 6 Meters in Length are Manufactured as Standard.
- For Multiple Orders, the Production of Special Length is Available.
- The Products can Optionally be Produced as PN 8 and PN 10.

**ERHAS®**  
IRRIGATION SYSTEMS



## SPRINKLER IRRIGATION METHOD

The applications of surface irrigation (flood irrigation) methods are not productive in the fields whose surface is not smooth; having more slope and infiltration (water intake) speed is high. The surface irrigation (flood irrigation) is not economical due to the decrease of the flow length also in the lands where the water intake speed is high. In this sort of soils, the ideal irrigation is the sprinkler irrigation. Taking some of these cases into consideration, sprinkler irrigation method has found a wide application fields especially in developed countries due to many advantages it provides.

## WHAT IS SPRINKLER IRRIGATION METHOD?

The system which is composed of pipes with the nozzles or heads which spray water on the surface of land under a certain pressure in fine drops of rain forms is called "Sprinkler Irrigation Method." In the Sprinkler Irrigation method, the irrigation water which is sprinkled in the air under pressure through the sprinklers which are fitted at certain distances on the field, falls on the surface of the ground and stored in the root zone of the plant penetrating into the soil through infiltration. This irrigation method is named sprinkler irrigation method as it looks like a natural rain. In order to give water under pressure through the heads, it is necessary to have a pressured pipe system and the operational pressure should be given either through a pump unit or through gravity by placing the water supply in a higher place. At least 2.5 atm pressure is needed to enable the sprinkle irrigation system operates productively. So in order to apply the method, water conveying system consisting of main and lateral lines and a system to provide the pressure are required. The pressure is mainly provided from a pumping unit. The sprinklers complete the system.

## THE ELEMENTS OF SPRINKLER SYSTEM

- a) Water source :** All sorts of water sources can be used in this method. So, it could be any of the running water, lake, caisson wells, deep well, pond, dam, irrigation canal, etc. The water is needed to be suitable for irrigation in terms of quality and not containing much amount of sediment and floating matters; otherwise, these matters will cause blockages in the pipe lines and sprinklers.
- b) Pump unit:** The necessary operational pressure is usually provided through pump unit in the sprinkler irrigation systems. On the conditions where the static suction height is not too much, centrifuge type; deep well pumps with vertical shafts or submersible pumps are used in the deep wells. The pumps are operated either using liquid fuel or electricity. The electrical motor pumps are preferred because of the ease of operational facility, establishment cost and the economy it provides in the energy inputs.
- c) Pipe Lines:** The main pipe line conveys water which is taken from the source to the lateral pipe lines. The lateral pipe lines are the ones where the sprinklers exist on. They convey the water they get from the main pipe line to the sprinklers.
- d) Sprinklers:** These parts take place on the lateral pipe lines. The connection between the lateral pipe lines and sprinklers are provided with the riser pipes which are selected according to the plant height.

## WHAT ARE THE APPLICATION CONDITIONS OF SPRINKLER IRRIGATION METHOD?

If the sprinkler irrigation systems are operated in a proper way, the needs of the irrigation water will become significantly less in comparison to surface irrigation. Particularly, it results successful outcomes with the irrigation of shoal rooted plants in the lands whose surface is not smooth, high-sloped, and the straining speed is high. In the sprinkler irrigation method, a certain initial investment and energy costs are required in the beginning. If these costs can be covered by agricultural product increase implementing the method, the sprinkler irrigation systems can be developed. As the sprinkler irrigation methods require less workmanship, it has found a wide application field in the places where the labor costs are high or it is hard to find labors.

1. The usable water holding capacity of the soils: The plants can benefit from the water available between the field capacity in the soil and constant fading point. This moist amount is called the "Usable water holding capacity" or the "efficient capacity" of the soil. This is changeable according to the structure of the soil.
2. The Effective Root depths of the plants: The root depth where the plants get water they need in 80% for their normal growth is called "Effective Root Depth". This value indicates the soil depth to be watered during the irrigation and it generally changes between 30 – 180 centimeters according to the plant type.

Soil Structure	Usable water keeping capacity (mm/1m)	
	Limits	Average
Rough sand	33-62	40
Rough sand and thin sand	60-80	70
Rough sand and thin sandy soil	85-125	105
Average type very thin sandy soil	125-190	160
Thin type very thin sandy soil and silt clay	145-210	175
Thin type sandy clay, silt clay and clay	135-210	170

Plant Species	Effective Root Depth (cm)	Plant Species	Effective Root Depth (cm)	Plant Species	Effective Root Depth (cm)
Grapevine	90-180	Spinach	60	Potato (Sweet)	90
Pea	75	Marrow	45-60	Aubergine	30-50
Pepper	30-60	Melon	75-90	Onion	90
Strawberry	30-45	Cabbage	45-60	Sorgum	45
Tomato	30-60	Lettuce	30	Soybean	75
Artichoke	120	Pasture	45	Sugar Beet	60-90
Beans	60	Fruit Trees	90-150	Citrus Fruits	50-150
Carrot	45-60	Corn	75	Tobacco	75
Cucumber	45-60	Cotton	120	Pistachio	45
Cereals	60-70	Potato	60	Clover	90-180



### 3. Irrigation water needs for the products:

Crops	Water amount to be given once		Sulama	
	[Ha/mm <sup>3</sup> ]	[Ha/mm <sup>3</sup> ]	Irrigation Repetition	Intervals (Day)
Cereals	100-150	1000-1500	2-3	20-30
Vegetables	20-70	200-700	12-20	5-10
Fruit Trees	70-100	700-1000	4-5	20-25
Nursery	50-80	500-800	8-10	10-15
Clover	100-125	1000-1250	4-8	20-30

**4. Water intake (Infiltration) speeds of the soils:** Knowing the water intake speed of the soils is very important in irrigation. The causes such as the structure and texture of soil, the amount of the organic matter in the soil, the amount of the moist, flora, the slope in the field, the congestion and cracking of the soil, the type and amount of the salts available in the soil and water affect the water intake speed of the soil.

## WHAT ARE THE BENEFITS OF SPRINKLER IRRIGATION METHOD ?

The advantages of the sprinkler irrigation method in comparison to the surface irrigation method are as follows:

- Water use efficiency is high. In the places where the irrigation water is less, this water can be utilized maximally.
- Irrigation can be performed in the sloping and the field shapes (topography) are bad without causing any erosion.
- It removes the condition of the plant's not coming out of the ground due to the fact that the soil forms cream at the time the seed is about to germinate.
- A saving is provided from the operation costs and workmanship.
- It is the most convenient irrigation system for the soils whose depth is less and shallow, and permeable.
- Dust, harmful insects and salt particles which is moved by the wind especially on the fields near sea side can be washed away by the sprinkler irrigation.
- As there is a controlled water deliverance possibility with the sprinkler irrigation, it becomes the most convenient irrigation method in the places where the ground water is high and having drainage problems.
- As there is no need for the field drains, the plantation area is getting increased and the agricultural operations are easily carried out.
- The dissoluble artificial fertilizers can be given to the plants together with the irrigation water without needing any workmanship.
- Vegetables, citrus fruits, vineyard and other orchards can be protected from frost and heat.
- As the water is given to the soil in fine particles just like in the rain, it provides at the rate of 25 – 50 % production increase in respect of the irrigation forms.
- It saves time.
- An equal water distribution to the per sqm is provided.
- There is no need for leveling the agricultural fields even if they are not smooth.
- A controlled irrigation is performed without increasing the ground water level.

## THINGS TO BE CARED IN INSTALLING THE SPRINKLER IRRIGATION METHOD ?

- The main pipe line should be placed in a parallel direction with the dominant slope direction.
- The lateral lines should be at upright position to the dominant slope and the direction parallel to leveling curves as much as possible.
- In the places where the wind speed is more, the laterals should be placed to be at upright position towards the dominant wind direction.
- Using too long lateral lines should be avoided. The laterals' being short decreases the workmanship and provides equal water distribution.
- The movement of the laterals on the main line should be arranged in the way to require the minimum workforce.
- The system should be arranged in square or rectangular shape as much as possible to provide an easy lateral movement and to make as less replacement as possible with the sprinklers operating together.
- The pipe sizes and arrangement of the system should be at the formation to decrease the annual costs to minimum.
- In case the possibilities allow, the pumping unit should be placed in the middle of the field as it will enable the selection of suitable and economical pipe diameters.

## WHAT ARE THE ISSUES TO BE CARED DURING THE OPERATION AND MAINTENANCE OF SPRINKLER IRRIGATION METHOD?

ERHAS Sprinkler Irrigation Pipes in order to be much resistant against the cold, sun light and heat, they are manufactured in the most suitable color not absorbing the rays but to reflect, will be in your service for many years under proper usage conditions. Therefore, it will be beneficial to follow up the following recommendations on operation and maintenance.

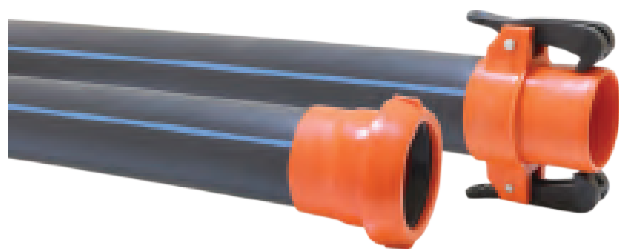
- Before fitting the gaskets of the pipes, clean the gasket grooves.
- Initially, the system is started at the smaller flow and the lateral and main pipes should be filled with water and the pipe line should be cleaned by unmounting the end cap for a very short time.
- A filter should be fitted to the pump suction pipe so that the foreign matters do not enter and the sprinkling nozzles are not blocked.
- The time for changing the place of the laterals should certainly be determined.
- The position of the laterals should be well-arranged according to the wind condition in order to make the irrigation distribution properly.
- If the system supplied with the fertilizer, all of the system should be cleaned properly.
- When the irrigation process is over, the gaskets should be kept in a box after drying them all.
- The joining parts and gaskets should be wiped using a soapy cloth so as to enable the pipes easily take apart and fit again while mounting pipes to each other.





## SPRINKLER PIPES

### Blue Line



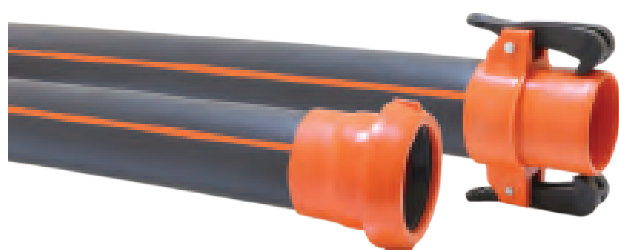
#### 5 Meters

Product Code	Product Diameter	
	mm	inch
050-005-601	50	1 ½"
063-005-601	63	2"
075-005-601	75	2 ½"
090-005-601	90	3"
110-005-601	110	4"
125-005-601	125	4 ½"
140-005-601	140	5"
160-005-601	160	6"

#### 6 Meters

Product Code	Product Diameter	
	mm	inch
050-005-602	50	1 ½"
063-005-602	63	2"
075-005-602	75	2 ½"
090-005-602	90	3"
110-005-602	110	4"
125-005-602	125	4 ½"
140-005-602	140	5"
160-005-602	160	6"

### Orange Line



#### 5 Meters

Product Code	Product Diameter	
	mm	inch
050-005-701	50	1 ½"
063-005-701	63	2"
075-005-701	75	2 ½"
090-005-701	90	3"
110-005-701	110	4"
125-005-701	125	4 ½"
140-005-701	140	5"
160-005-701	160	6"

#### 6 Meters

Product Code	Product Diameter	
	mm	inch
050-005-702	50	1 ½"
063-005-702	63	2"
075-005-702	75	2 ½"
090-005-702	90	3"
110-005-702	110	4"
125-005-702	125	4 ½"
140-005-702	140	5"
160-005-702	160	6"

- Sprinkler pipes are produced in 5.75 m length as mounted for export concerning container dimensions.

## ABOT



Product Code	Product Diameter	
	mm	inch
050-001-607	50	1 ½"
063-001-607	63	2"
075-001-607	75	2 ½"
090-001-607	90	3"
110-002-607	110	4"

## SPHERICAL LINE VALVE



Product Code	Product Diameter		Packing Quantity	Box Type
	mm	inch		
050-000-612	50	1 ½"	50	B-6
063-000-612	63	2"	32	B-6
075-000-612	75	2 ½"	20	B-6
090-000-612	90	3"	15	B-6
110-000-612	110	4"	9	B-7
125-000-612	125	4 ½"	7	B-7



## ELBOW

Product Code	Product Diameter	
	mm	inch
050-000-608	50	1 ½"
063-000-608	63	2"
075-000-608	75	2 ½"
090-000-608	90	3"
110-000-608	110	4"
125-000-608	125	4 ½"
140-000-608	140	5"
160-000-608	160	6"



## REDUCTION

Product Code	Product Diameter	
	mm	inch
063-050-665	63 x 50	2" x 1 ½"
075-050-666	75 x 50	2 ½" x 1 ½"
075-063-667	75 x 63	2 ½" x 2"
090-050-668	90 x 50	3" x 1 ½"
090-063-669	90 x 63	3" x 2"
090-075-670	90 x 75	3" x 2 ½"
110-075-671	110 x 75	4" x 2 ½"
110-090-672	110 x 90	4" x 3"
125-075-673	125 x 75	4 ½" x 2 ½"
125-090-674	125 x 90	4 ½" x 3"
125-110-675	125 x 110	4 ½" x 4"
140-090-677	140 x 90	5" x 3"
140-110-678	140 x 110	5" x 4"
140-125-679	140 x 125	5" x 4 ½"
160-110-682	160 x 110	6" x 4"
160-125-683	160 x 125	6" x 4 ½"
160-140-684	160 x 140	6" x 5"



## S

Product Code	Product Diameter	
	mm	inch
075-000-613	75	2 ½"
090-000-613	90	3"
110-000-613	110	4"



## GASKET

Product Code	Product Diameter		Packing Quantity	Sack Type
	mm	inch		
050-000-509	50	1 ½"	3000	S-4
063-000-509	63	2"	2000	S-4
075-000-509	75	2 ½"	1000	S-4
090-000-509	90	3"	700	S-4
110-000-509	110	4"	500	S-4
125-000-509	125	4 ½"	300	S-4
140-000-509	140	5"	200	S-4
160-000-509	160	6"	150	S-4







Product Code	Product Diameter	
	mm	inch
050-050-621	50 x 50	1 ½" x 1 ½"
063-063-623	63 x 63	2" x 2"
075-050-624	75 x 50	2 ½" x 1 ½"
075-063-625	75 x 63	2 ½" x 2"
075-075-626	75 x 75	2 ½" x 2 ½"
090-050-627	90 x 50	3" x 1 ½"
090-063-628	90 x 63	3" x 2"
090-075-629	90 x 75	3" x 2 ½"
090-090-630	90 x 90	3" x 3"
110-050-631	110 x 50	4" x 1 ½"
110-063-631	110 x 63	4" x 2"
110-075-631	110 x 75	4" x 2 ½"
110-090-632	110 x 90	4" x 3"
110-110-633	110 x 110	4" x 4"
125-050-634	125 x 50	4 ½" x 1 ½"
125-063-634	125 x 63	4 ½" x 2"
125-075-634	125 x 75	4 ½" x 2 ½"
125-090-635	125 x 90	4 ½" x 3"
125-110-636	125 x 110	4 ½" x 4"
125-125-637	125 x 125	4 ½" x 4 ½"
140-075-638	140 x 75	5" x 2 ½"
140-090-639	140 x 90	5" x 3"
140-110-640	140 x 110	5" x 4"
140-125-641	140 x 125	5" x 4 ½"
140-140-642	140 x 140	5" x 5"
160-075-643	160 x 75	6" x 2 ½"
160-090-644	160 x 90	6" x 3"
160-110-645	160 x 110	6" x 4"
160-125-646	160 x 125	6" x 4 ½"
160-140-647	160 x 140	6" x 5"
160-160-648	160 x 160	6" x 6"





Product Code	Product Diameter	
	mm	inch
050-050-642	50 x 50	1 1/2" x 1 1/2"
063-063-644	63 x 63	2" x 2"
075-050-645	75 x 50	2 1/2" x 1 1/2"
075-063-646	75 x 63	2 1/2" x 2"
075-075-647	75 x 75	2 1/2" x 2 1/2"
090-050-648	90 x 50	3" x 1 1/2"
090-063-649	90 x 63	3" x 2"
090-075-650	90 x 75	3" x 2 1/2"
090-090-651	90 x 90	3" x 3"
110-050-652	110 x 50	4" x 1 1/2"
110-063-652	110 x 63	4" x 2"
110-075-652	110 x 75	4" x 2 1/2"
110-090-653	110 x 90	4" x 3"
110-110-654	110 x 110	4" x 4"
125-050-655	125 x 50	4 1/2" x 1 1/2"
125-063-655	125 x 63	4 1/2" x 2"
125-075-655	125 x 75	4 1/2" x 2 1/2"
125-090-656	125 x 90	4 1/2" x 3"
125-110-657	125 x 110	4 1/2" x 4"
125-125-658	125 x 125	4 1/2" x 4 1/2"
140-075-659	140 x 75	5" x 2 1/2"
140-090-660	140 x 90	5" x 3"
140-110-661	140 x 110	5" x 4"
140-125-662	140 x 125	5" x 4 1/2"
140-140-663	140 x 140	5" x 5"
160-075-664	160 x 75	6" x 2 1/2"
160-090-665	160 x 90	6" x 3"
160-110-666	160 x 110	6" x 4"
160-125-667	160 x 125	6" x 4 1/2"
160-140-668	160 x 140	6" x 5"
160-160-669	160 x 160	6" x 6"





## MALE HEAD



Product Code	Product Diameter	
	mm	inch
050-000-603	50	1 ½"
063-000-603	63	2"
075-000-603	75	2 ½"
090-000-603	90	3"
110-000-603	110	4"
125-000-603	125	4 ½"
140-000-603	140	5"
160-000-603	160	6"

## FEMALE HEAD



Product Code	Product Diameter	
	mm	inch
050-000-504	50	1 ½"
063-000-504	63	2"
075-000-504	75	2 ½"
090-000-504	90	3"
110-000-504	110	4"
125-000-504	125	4 ½"
140-000-504	140	5"
160-000-504	160	6"

## MALE END CAP

Product Code	Product Diameter	
	mm	inch
050-000-605	50	1 ½"
063-000-605	63	2"
075-000-605	75	2 ½"
090-000-605	90	3"
110-000-605	110	4"
125-000-605	125	4 ½"
140-000-605	140	5"
160-000-605	160	6"



## FEMALE END CAP

Product Code	Product Diameter	
	mm	inch
050-000-506	50	1 ½"
063-000-506	63	2"
075-000-506	75	2 ½"
090-000-506	90	3"
110-000-506	110	4"
125-000-506	125	4 ½"
140-000-506	140	5"
160-000-506	160	6"





## METAL THREADED PLASTIC PUMP CONNECTION (MALE)



- Not proper for welding.

Product Code	Connection Type	Product Diameter		Packing Quantity	Box Type
		mm	inch	Box	
063-000-614	BSPT	63	2"	60	B-1
063-001-614	NPT	63	2"	60	B-1
075-000-614	BSPT	75	2 ½"	30	B-1
090-000-614	BSPT	90	3"	24	B-1
090-001-614	NPT	90	3"	24	B-1
110-000-614	BSPT	110	4"	12	B-1
125-000-614	BSPT	125	4 ½"	8	B-1
140-000-614	BSPT	140	5"	4	B-1
160-000-614	BSPT	160	6"	4	B-1

## METAL THREADED PLASTIC PUMP CONNECTION (FEMALE)



- Not proper for welding.

Product Code	Connection Type	Product Diameter		Packing Quantity	Box Type
		mm	inch	Box	
063-000-515	BSPT	63	2"	80	B-1
063-001-515	NPT	63	2"	80	B-1
075-000-515	BSPT	75	2 ½"	36	B-1
090-000-515	BSPT	90	3"	30	B-1
090-001-515	NPT	90	3"	30	B-1
110-000-515	BSPT	110	4"	18	B-1
125-000-515	BSPT	125	4 ½"	8	B-1
140-000-515	BSPT	140	5"	5	B-1
160-000-515	BSPT	160	6"	5	B-1

## PLASTIC THREADED PLASTIC PUMP CONNECTION (MALE)

Product Code		Product Diameter		Packing Quantity	Box Type
BSPT	NPT	mm	inch	Box	
050-000-616	050-001-616	50	1 ½"	100	B-1
063-000-616	063-001-616	63	2"	60	B-1
075-000-616	075-001-616	75	2 ½"	36	B-1
090-000-616	090-001-616	90	3"	24	B-1



## PLASTIC THREADED PLASTIC PUMP CONNECTION (FEMALE)

Product Code		Product Diameter		Packing Quantity	Box Type
BSPT	NPT	mm	inch	Box	
050-000-517	050-001-517	50	1 ½"	210	B-1
063-000-517	063-001-517	63	2"	120	B-1
075-000-517	075-001-517	75	2 ½"	52	B-1
090-000-517	090-001-517	90	3"	36	B-1
110-000-517	-	110	4"	24	B-1





## MALE PUMP CONNECTION ALUMINIUM



Product Code	Product Diameter	
	mm	inch
050-000-510	50	1½"
063-000-510	63	2"
075-000-510	75	2 ½"
090-000-510	90	3"
110-000-510	110	4"
125-000-510	125	4 ½"
140-000-510	140	5"
160-000-510	160	6"

## FEMALE PUMP CONNECTION ALUMINIUM



Product Code	Product Diameter	
	mm	inch
050-000-511	50	1½"
063-000-511	63	2"
075-000-511	75	2 ½"
090-000-511	90	3"
110-000-511	110	4"
125-000-511	125	4 ½"
140-000-511	140	5"
160-000-511	160	6"

## MALE PUMP CONNECTION METAL

Product Code	Product Diameter	
	mm	inch
075-000-518	75	2 ½"
090-000-518	90	3"
110-000-518	110	4"
125-000-518	125	4 ½"
140-000-518	140	5"
160-000-518	160	6"



## FEMALE PUMP CONNECTION METAL

Product Code	Product Diameter	
	mm	inch
075-000-519	75	2 ½"
090-000-519	90	3"
110-000-519	110	4"
125-000-519	125	4 ½"
140-000-519	140	5"
160-000-519	160	6"





# SPRINKLERS



**ERHAS<sup>®</sup>**  
IRRIGATION SYSTEMS



## GENERAL INFORMATION

### ABOUT SPRINKLERS

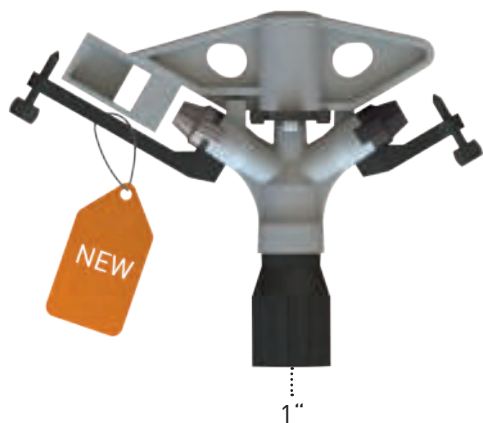


Erhas Agricultural Irrigation Sprinklers are produced of UV resistant strong plastic material with changeable nozzles in different flow rates. Thanks to the hardness adjustable stainless steel springs used in the manufacture of Erhas Sprinklers, it can work at all pressure rates, slow and fast circle speed easily. In order to perform easy and continuous rotation, it is provided with teflon bearing. With the advantage of distribution sections inside nozzle grooves and water spreading pins, it sprinkles the water as cyclone shape and in very small particles. Therefore it can irrigate the whole area without any non-irrigated space.





**Note:** Mentioned data in our catalog are obtained by our technical staff with the adjustable pressured water by using 65 cm riser pipes from the ground level.



## SPRINKLER 1630



Technical Specifications						
Nozzle Diameter	2 Bar		2,5 Bar		3 Bar	
	Flow	Throw Range	Flow	Throw Range	Flow	Throw Range
	l/h	m - ( r )	l/h	m - ( r )	l/h	m - ( r )
4,0 - 5,0 mm	2110	15,00	2300	16,00	2615	16,50
4,0 - 6,0 mm	2375	15,50	2760	16,50	3140	17,00
3,5 - 6,0 mm	2200	15,50	2560	16,00	2915	17,00

Product Code	Nozzle Diameters (mm)				Diameter		Packing Quantity		Box Type
	Mounted		Spare		mm	inch	Bag	Box	
	Right	Left	Right	Left					
025-000-017	 4,0	 5,0	 3,5	 6,0	32	1	1	50	B-1

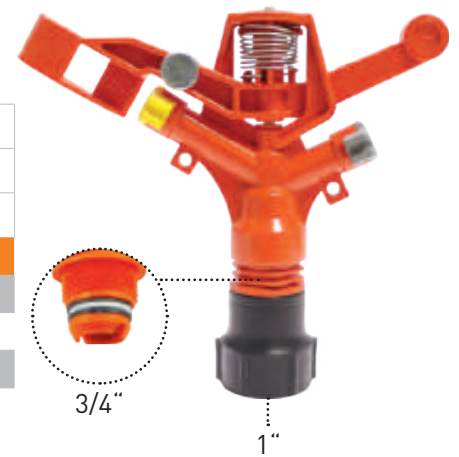
### ERHAS SPRINKLER 1630

#### PACKAGING ADVANTAGE



Erhas Sprink 1630 standard package includes 5 nozzles and Ø32 mm x Ø25 mm reduction sleeve and each sprinkler is packed in one plastic bag and offered to our customers.

Technical Specifications						
Nozzle Diameter	2 Bar		2,5 Bar		3 Bar	
	Flow	Throw Range	Flow	Throw Range	Flow	Throw Range
	l/h	m - ( r )	l/h	m - ( r )	l/h	m - ( r )
4,0 - 5,0 mm	2110	15,00	2300	16,00	2615	16,50
4,0 - 6,0 mm	2375	15,50	2760	16,50	3140	17,00
3,5 - 4,5 mm	1890	13,00	2070	13,50	2255	14,50
3,5 - 5,5 mm	2190	15,50	2390	16,00	2710	16,50



Product Code	Nozzle Diameters (mm)				Diameter		Packing Quantity		Box Type
	Mounted		Spare		mm	inch	Bag	Box	
	Right	Left	Right	Left					
025-000-015	4,0	5,0	-	6,0	25	3/4	1	80	B-1
			3,5	4,5	25	3/4	1	80	B-1
			3,5	5,5	25	3/4	1	80	B-1

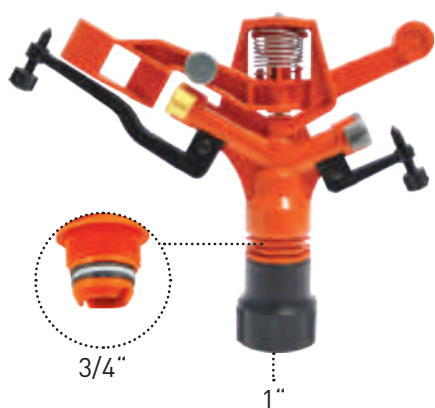
## ERHAS SPRINKLER 1610 S

### PACKAGING ADVANTAGE

Erhas Sprink 1610 S standard package includes 6 nozzles and Ø32 mm x Ø25 mm reduction sleeve and each sprinkler is packed in one plastic bag and offered to our customers.



## SPRINKLER - 1610 SK



Technical Specifications						
Nozzle Diameter	2 Bar		2,5 Bar		3 Bar	
	Flow	Throw Range	Flow	Throw Range	Flow	Throw Range
	l/h	m - ( r )	l/h	m - ( r )	l/h	m - ( r )
4,0 - 5,0 mm	2110	15,00	2300	16,00	2615	16,50
4,0 - 6,0 mm	2375	15,50	2760	16,50	3140	17,00
3,5 - 4,5 mm	1890	13,00	2070	13,50	2255	14,50
3,5 - 6,0 mm	2200	15,50	2560	16,00	2915	17,00
2,3 - 3,8 mm	1050	12,00	1200	12,50	1300	12,80

Product Code	Nozzle Diameters (mm)				Diameter		Packing Quantity		Box Type
	Mounted		Spare		mm	inch	Bag	Box	
	Right	Left	Right	Left					
025-000-016-01	● 4,0	● 5,0	● 3,5	● 4,5	25	¾	1	60	B-1
			-	● 6,0					
025-000-016-02	● 2,3	● 3,8	-	● 4,5	25	¾	1	60	B-1
			-	● 6,0					
			-	● 5,0					

## ERHAS SPRINKLER 1610 SK

### PACKAGING ADVANTAGE

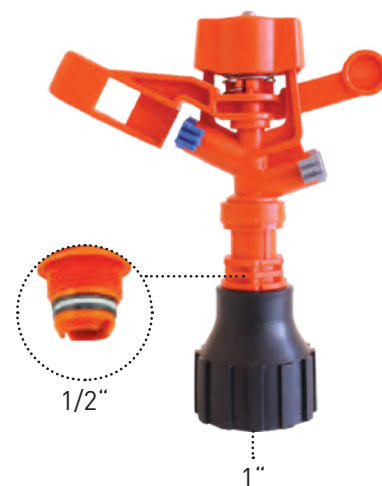


Erhas Sprink 1610 SK standard package includes 5 nozzles and Ø32 mm x Ø25 mm reduction sleeve and each sprinkler is packed in one plastic bag and offered to our customers.



## SPRINKLER - 1615

Technical Specifications						
Nozzle Diameter	2 Bar		2,5 Bar		3 Bar	
	Flow	Throw Range	Flow	Throw Range	Flow	Throw Range
	l/h	m - (r)	l/h	m - (r)	l/h	m - (r)
1,8 - 2,3 mm	510	11,00	580	11,00	600	11,00
1,8 - 2,8 mm	690	11,00	760	11,00	820	11,00
1,8 - 3,2 mm	820	11,50	900	12,00	980	12,00
2,5 - 3,5 mm	1060	12,25	1160	12,50	1240	12,75



Product Code	Nozzle Diameters (mm)				Diameter		Packing Quantity		Box Type
	Mounted		Spare		mm	inch	Bag	Box	
	Right	Left	Right	Left					
025-000-013	2,5	3,5	2,1	3,2	20	½	1	175	B-1
			1,8	2,8					

Erhas Sprink 1615 standard package includes 6 nozzles and Ø32 mm x Ø20 mm reduction sleeve and each sprinkler is packed in one plastic bag and offered to our customers.



## SPRINKLER - 1615 K

Technical Specifications						
Nozzle Diameter	2 Bar		2,5 Bar		3 Bar	
	Flow	Throw Range	Flow	Throw Range	Flow	Throw Range
	l/h	m - (r)	l/h	m - (r)	l/h	m - (r)
1,8 - 2,3 mm	510	11,00	580	11,00	600	11,00
1,8 - 2,8 mm	690	11,00	760	11,00	820	11,00
1,8 - 3,2 mm	820	11,50	900	12,00	980	12,00
2,5 - 3,5 mm	1060	12,25	1160	12,50	1240	12,75



Product Code	Nozzle Diameters (mm)				Diameter		Packing Quantity		Box Type
	Mounted		Spare		mm	inch	Bag	Box	
	Right	Left	Right	Left					
025-000-014	2,5 K	3,5	2,1	3,2	20	½	1	150	B-1
			1,8	2,8					

Erhas Sprink 1615 K standard package includes 6 nozzles and Ø32 mm x Ø20 mm reduction sleeve and each sprinkler is packed in one plastic bag and offered to our customers.



## SPRINKLER VALVE



Product Code	Diameter		Packing Quantity	Box Type
	mm	inch	Box	
032-032-014	32	1"	120	B-1

## SPHERICAL VALVE



Product Code	Diameter		Packing Quantity	Sack Type
	mm	inch	Sack	
032-032-004	32	1"	100	S-3

## RISER PIPE PP (ORANGE)

Product Code	Product Color	Lenght	Diameter		Packing Quantity	Sack Type
		cm	mm	inch	Sack	
032-032-125	Orange	25 MxM	32 x 32	1"x1"	100	S-2
032-032-225	Orange	25 MxF	32 x 32	1"x1"	100	S-2
032-032-135	Orange	35 MxM	32 x 32	1"x1"	100	S-3
032-032-235	Orange	35 MxF	32 x 32	1"x1"	100	S-3
032-032-150	Orange	50 MxM	32 x 32	1"x1"	100	S-4
032-032-250	Orange	50 MxF	32 x 32	1"x1"	100	S-4



## RISER PIPE PP (BLACK)

Product Code	Product Color	Lenght	Diameter		Packing Quantity	Sack Type
		cm	mm	inch	Sack	
032-032-325	Black	25 MxM	32 x 32	1"x1"	100	S-2
032-032-425	Black	25 MxF	32 x 32	1"x1"	100	S-2
032-032-335	Black	35 MxM	32 x 32	1"x1"	100	S-3
032-032-435	Black	35 MxF	32 x 32	1"x1"	100	S-3
032-032-350	Black	50 MxM	32 x 32	1"x1"	100	S-4
032-032-450	Black	50 MxF	32 x 32	1"x1"	100	S-4





## RISER PIPE PVC



Product Code	Lenght	Diameter		Packing Quantity
		mm	inch	Sack
032-132-025	25	32 x 32	1"x1"	250
032-132-035	35	32 x 32	1"x1"	200
032-132-050	50	32 x 32	1"x1"	100
032-132-060	60	32 x 32	1"x1"	100
032-132-100	100	32 x 32	1"x1"	100
032-132-150	150	32 x 32	1"x1"	75

## NIPPLE



Product Code	Diameter		Packing Quantity		Box Type
	mm	inch	Bag	Box	
032-032-003	32 x 32	1" x 1"	150	450	B-1

## REDUCTION SLEEVE



Product Code	Diameter		Packing Quantity		Box Type
	mm	inch	Bag	Box	
032-020-001	32 x 20	1" x 1/2"	150	450	B-1
032-025-002	32 x 25	1" x 3/4"	150	450	B-1

## SLEEVE

Product Code	Diameter		Packing Quantity		Box Type
	mm	inch	Bag	Box	
032-032-005	32 x 32	1" x 1"	150	450	B-1



## ADAPTER FOR ABOT

Product Code	Diameter		Packing Quantity		Box Type
	mm	inch	Bag	Box	
040-032-006	40 x 32	1½" x 1"	150	450	B-1



## ADAPTER

Product Code	Diameter		Packing Quantity		Box Type
	mm	inch	Bag	Box	
032-025-001	32 x 25	1" x ¾"	150	450	B-1



## MINI SPRINK SLEEVE WITH SCREW



Product Code	Diameter		Packing Quantity		Box Type
	mm	inch	Bag	Box	
020-000-007	20 x 20	1/2 x 1/2	100	500	B-1
025-000-007	25 x 25	3/4" x 3/4"	100	500	B-1

## DISTRIBUTOR FOR ABOT (TAPE CONNECTION)



Product Code	Diameter		Packing Quantity		Box Type
	mm	inch	Bag	Box	
020-000-008	32x20x20x20	1"x1/2"x1/2"x1/2"	100	400	B-2

## DISTRIBUTOR FOR ABOT (MALE - MALE THREADED)



Product Code	Diameter		Packing Quantity		Box Type
	mm	inch	Bag	Box	
020-000-009	32x25x20x20	1"x3/4"x1/2"x1/2"	100	400	B-2

## DISTRIBUTOR FOR ABOT (MALE - FEMALE THREADED)



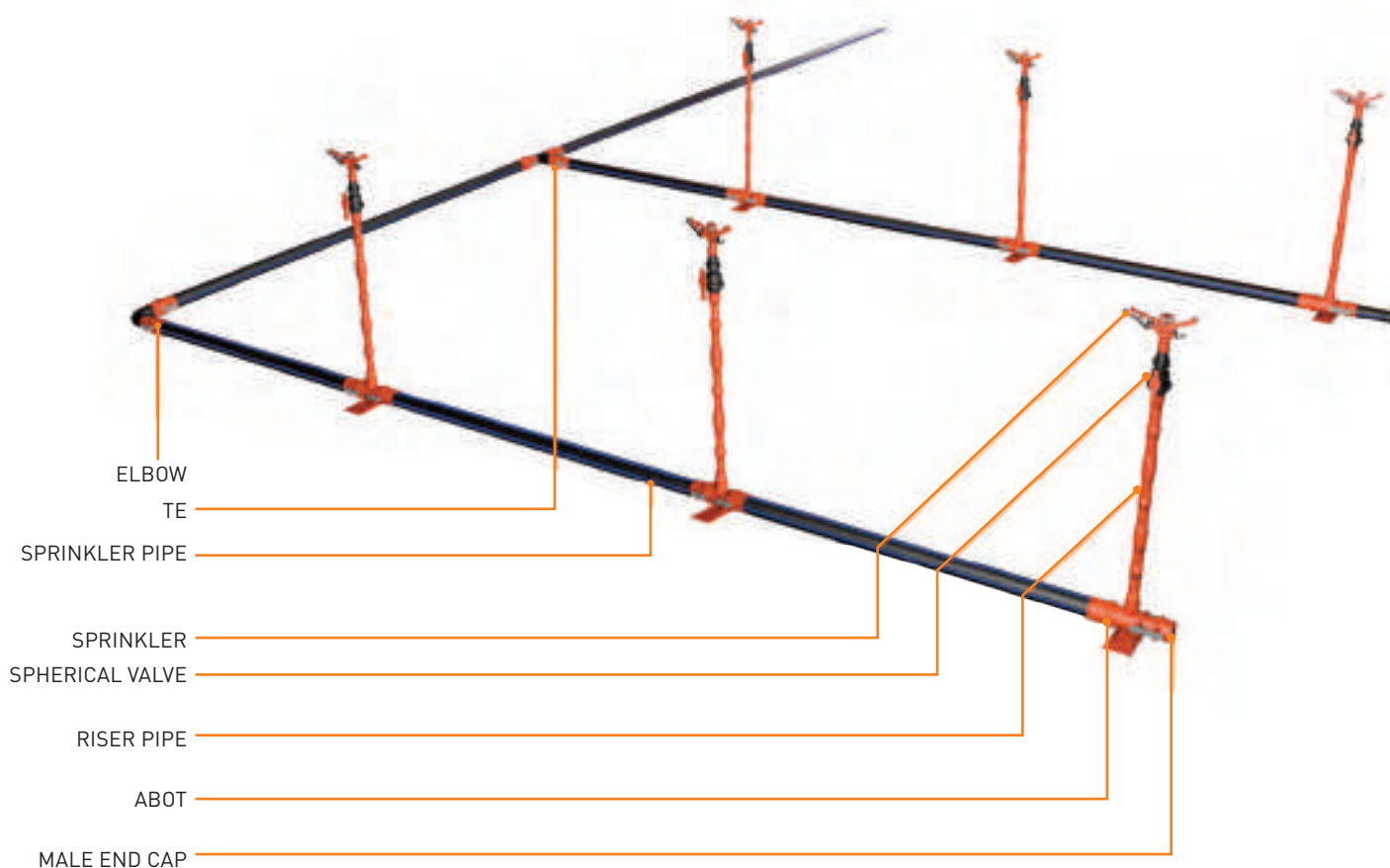
Product Code	Diameter		Packing Quantity		Box Type
	mm	inch	Bag	Box	
020-000-011	32x32x20x20	1"x1"x1/2"x1/2"	100	300	B-2
025-000-011	32x32x25x25	1"x1"x3/4"x3/4"	100	300	B-2

## STABILIZER IRON BAR



Product Code	Diameter		Length	
	mm		cm	
020-000-010	8		120	









1.0 L



1.6 L



2.2 L





# DRIP IRRIGATION



- Maximum Resistance to Sun Rays With Anti-UV Additive.
- ZERO Head Loss With the Help of Directional Interior Design.
- Perfect Leak-Proofing.
- Labyrinth Dripper Technology for Maximum Congestion Resistance.
- Homogeneous Irrigation at "EXCELLENT" Level due to ASABE Norms.



TS EN ISO 9261



- Labyrinth Dripper Technology for Maximum Congestion Resistance.
  - Internal Filtered Dripper Technology.
- Wide Flat Water Passage For Optimum Flowability.
  - Injection Dripper With Very Low Friction.
- Homogeneous Irrigation Throughout the Lateral.

**ERHAS<sup>®</sup>**  
IRRIGATION SYSTEMS



Irrigation is a cultural process which is certainly required to do so as to obtain more yields from the unit area. The history of the irrigation is at least as old as the history of the agriculture. While human being was irrigating by means of driving water to the agricultural areas with appeal for hundreds of years, many irrigation methods were developed by using the means of technology today. One of these is the drip irrigation system.

## DRIP IRRIGATION METHOD

The basic principle in drip irrigation is to apply irrigation water at frequent time intervals and with less amount of water. Irrigation is started at the high soil moist level. Thus, a tension originated from the moist lack in the soil is not created in the grown plant. Exclusively, water is given to the environment to ensure the growth of the plant roots at the sufficient level. Generally, the daily or a few days' water requirement of the plant is met with this method. The irrigation water which is taken from the source is refined from sand, sediment, floating substances and very small particles in the filtering unit. When needed, the plant nutriment element is mixed into the irrigation water via fertilizer injection unit. Furthermore, system flow and system pressure is examined. The irrigation water is conveyed to the drips which are placed close to the plant through pressured pipe network. Water which is given to soil surface in drops form under the low pressure and low flow penetrates into soil by infiltration from here and diffuses with the effects of gravity and capillary forces and wets the soil volume where the plant capillary roots are grown. Generally, a wet strap is obtained along with the plant rows and not-wet dry area remains between the rows deep infiltration or surface flow is never the case with a well-designing and application. Thus, the existing water source is effectively benefited.

## 1) THE ADVANTAGES OF DRIP IRRIGATION METHOD

The advantages of drip irrigation method over the other irrigation methods can be listed as in the following;

- a.** The evaporation from the soil surface and thus plant water consumption is generally at very low level with the drip irrigation method in comparison with the irrigation methods wetting all area. The reason for this is that there are dry areas remaining between the plant rows and the wet section is generally shadowed by the plant. Also, an equal water distribution is provided all parts of the area which is well-designed and well-operated irrigation and a high water application extraction is obtained. All these factors result a low irrigation water requirement for the unit area. Depending on this, unit area system flow decreases and much wider area can be irrigated in the manner to meet full water requirement especially at the limited water source conditions.
- b.** In the drip irrigation method, the irrigation is started when less amount of the available water capturing capacity in the effective plant root depth is consumed (generally 30-40%). In another word, irrigation is carried out when high soil damp is available in the root zone. Hence, the plant is not put in a tension originated from moist lack in the soil and gets water easily without disbursing much energy. This provides much better plant growth and usually much more amount and quality product is obtained.
- c.** The plant nutrient elements are given through fertilizer injection unit by mixing the irrigation water in the drip irrigation method. This provides the possibility to apply the macro or micro nutrient elements that the plant is in need during the growth season at the requested time and amount. In this way, an extremely effective fertilizing is provided. Consequently, also high yield and quality product is obtained.
- d.** The irrigation water is applied in well-regulation at requested time and amount with the drip irrigation method. The operation of the system is extremely easy and the irrigation workmanship costs are at the minimum level.
- e.** The salt existed in the soil is carried to the parietes of the wet soil volume with the effect of the gravity and the capillary force and environment where the plant capillary roots are grown is purified from salt at a certain ratio. Therefore, even the plants which are sensitive to salt can be grown confidently on the salty soil conditions under the drip water irrigation method.
- f.** On the salty irrigation water condition; although the osmotic pressure caused by dissolved salt in soil water is high, the power of water to be held by soil particles (matrix tension) is at lower level as a continuous high soil moist is point at issue during the growth season. The plant can get water through its roots at the soil moist tension which is the total of these two values. In conclusion, the salty irrigation water which cannot be applied with the other watering methods can be applied with drip irrigation method.
- g.** As the on-soil organs are not wetted, the plant diseases are avoided to spread; besides, weed struggling is carried out more easily as the weed grown is limited to the wetted area.
- h.** Utilizing from the dry area between the plant rows, some agricultural instruments and machines can be operated and pesticide, harvesting, etc. agricultural processes can be carried out during the irrigation.
- i.** As in the sprinkle watering method, the drip irrigation method can also be applied to the soils where the surface watering methods cannot be applied, high sloped, wavy, light textured or superficial safe.
- j.** The energy cost is low with the drip irrigation method in comparison with the sprinkle irrigation method as the operation pressure is much lower.
- k.** In the drip irrigation method, even extremely low capacity water sources can be benefitted.



## 2) FACTORS LIMITING THE APPLICATION OF DRIP IRRIGATION METHOD AND THEIR SOLUTIONS

Beside the advantages of the drip irrigation method listed above, some factors which limit its application are point at issue. These factors and the solutions for some of them are listed as in the following.

- a. As the cross section of the water flow way of the drips is too narrow, the most important problem with this method is the blockage of the drips. The blockage is caused by accumulation of chemical matters with the substances such as sand, sediment, moss, etc. and formation of the organic materials. For the solution of the problem, the irrigation water is infiltrated in the hydro-cyclone (sand-separator) which is existed in the control unit right before releasing water to the system; the sand-pebbles are filtered in the filter and sieve filter in stages and all the physical matters which may exist in water is bowdlerized. In order to avoid the chemical matter accumulation and formation of organic materials in the drips, it is necessary to operate the system at the pressure to provide the fast flow of water in the flow way of the drips within the bounds of the possibility, and also give lime solvent diluted hydrochloric or orthophosphoric acid a few times to the system utilizing from the fertilizer tank in the control unit during the watering season. After diluted acid application, water is let go out for some time by removing the pipe stoppers at the end of the pipes and the system is washed.
- b. Even though the irrigation water which is applied to the drip irrigation method is good quality water, it contains some amount of salt. Also there is salt in the soil. As the water moves towards the parietes of the wetted soil volume with the effect of the gravity and capillary forces, these salts is moved to the parietes of this wet volume together with water and accumulates here. As this local salt accumulation may cause problem, it may be needed to wash away under the root zone. In the regions where the annual rainfall is more than 300 mm, it generally causes no problems as the winter falls wash the salt in question under root zone. However, it may be necessary to give wash water additionally so as to wash away the salt accumulated in soil in the regions where the annual rainfall is low or on the salty soil and low-quality watering water conditions. This process is mainly realized via a portable sprinkle system which will make available in the organization out of watering season.
- c. The first establishment costs are quite high in the drip irrigation. Beside this, a continuous energy cost is also point at issue on the conditions where a pump unit is required to provide the operation pressure during the watering season. That's why, the drip irrigation systems are necessary to be planned and operated to require low cost as much as possible on condition of being suitable to its technique. Especially, it is extremely important that the planning of the system, sizing the system elements and introducing the operational principles procedures should be made by experts who are specialized on the issue.

## 3) THE CONDITIONS WHERE THE DRIP IRRIGATION METHODS WOULD BE APPLIED

Soil, topography, plant and water source features to which the drip irrigation method can be applied are described below.

### Soil and Topography features :

The drip irrigation method can be applied to soils from sandy to clayey, all sort of soil structure classes, with the superficial soils where the ground water or impermeable layer is too close, with salty soil, and beside this with the low or high sloped fields and wavy topography. However, the system arrangement should be made suitable to the topographic conditions of the field to be irrigated.

### Plant Features:

The drip irrigation method generally can be used for watering all the field and garden plants except the grain, lawn and pasture plants. However, watering some field plants via drip irrigation method may not be economical due to high system cost. The method is especially suitable to vegetable, vineyard, fruit trees, plants which are grown under cover and ornamental plants which are sensitive to moist lack in the soil and whose market value is high. On the conditions where the water source is limited, the drip irrigation method can be applied to the filed plants such as cotton, maize, potatoes as much wider area can be watered in comparison to other watering methods.

### Water Source Features:

In the drip irrigation method, all sort of aboveground and underground water sources can be benefitted even though they are of low capacity. The low quality irrigation water consisting of high percentage of salt can be used in drip irrigation. Only when the aboveground water source is benefitted, it is necessary to use the water not consisting more amount of sediment and floating matters or use after the sediment is precipitated in the pools and the floating matter are infiltrated in the filtering systems.

## 4) DRIP IRRIGATION SYSTEM

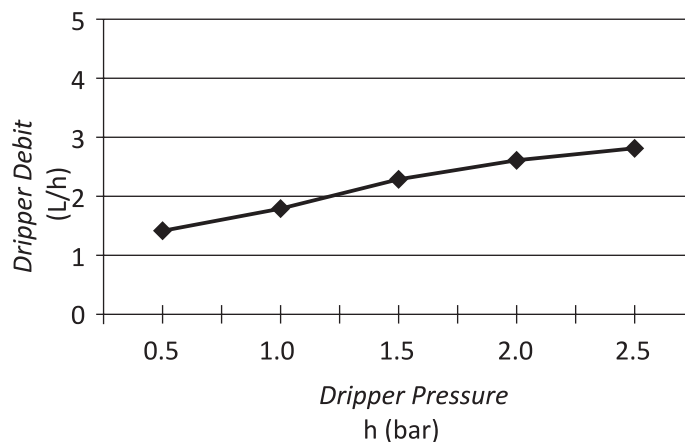
The drip irrigation systems are of pressured and consists of the necessary structure, machine, pipe, instruments and tools for receiving water from the source, filtering, mixing plant nutrient elements with water using fertilizer injection unit, conveying to the field to be watered, distribution in the field and giving to the plant root zone in controlled way. It is generally in fixed system form. The system elements remain in the same position during the watering season. However, some elements are removed from the elements at the end of the watering season.

**Some examples of the products to which the drip irrigation is applied;** Corn, cotton, orchard, citrus fruit, thyme, etc.



## PRESSURE – FLOW RELATIONS OF OUR ROUND DRIP IRRIGATION PIPES

The average drip flow rates ( $q$ ) under the various working pressures of (2,0 L/h Flow rate) drips which take place inside of Ø 16 mm round drip irrigation pipes that have been tested, the drip parameters ( $k$ ,  $x$ ) which describes the drip features and the production disparities coefficient ( $V_m$ ) is shown in Chart 1 and the graphs showing the pressure - flow rate relations are shown in Chart 2.



Working Pressure	Average Dripper Flow	Dripper Parameters ( $q=kx$ )		Estimation Coefficient	Production Difference Coefficient
h (Bar)	q (L/h)	k*	k**	R <sup>2</sup>	V <sub>m</sub>
0,5		1,888	0,448	0,989	0,0249
1,0	1,85				
1,5	2,27				
2,0	2,58				
2,5	2,87				

(\*) Dripper Dimensions characterization coefficient

(\*\*) Dripper flow coefficient

**Chart 1:** The average drip flow rates under the various working pressures of (2,0 L/h Flow) drips belong to our Ø 16 mm round drip irrigation pipes, the drip parameters and the production disparities coefficient

**Chart 2:** The pressure - Flow rate relations belong to the (2,0 L/h Flow) drips of our Ø 16 mm round Drip Irrigation pipes



As it is seen in Chart 1, the production disparities coefficient of our 2,0 L/h flow drips of our Ø 16 mm round drip irrigation pipes that have been tested, its production disparities coefficient has been found as  $V_m = 0,0249$ ; this value takes place within the "EXCELLENT" limits according to the classification ascribed by ASABE (American Society Of Agricultural and Biological Engineers) Standards.



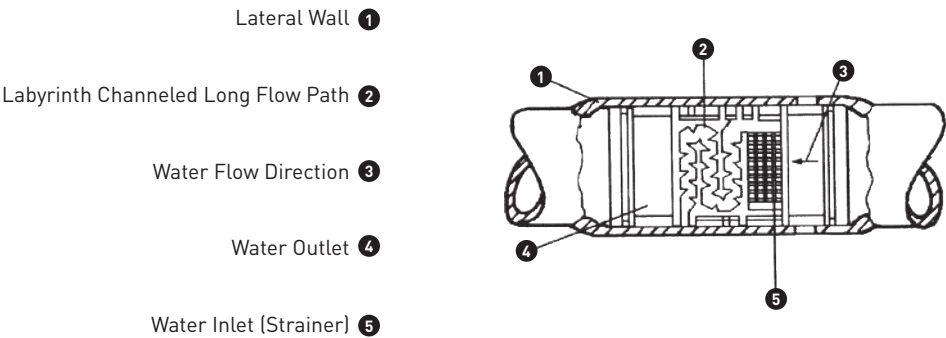
The optimum lateral lengths to provide equal water distribution at various operation conditions (operation pressure and slope) of our Ø 16 mm external diameter, 2,0 L/h flow Round Drip irrigation pipes are given in Chart 3.

**Chart 3:** The optimum lateral lengths to provide equal water distribution at various operation conditions of our Ø 16 mm external diameter, 2,0 L/h flow Round Drip Irrigation Pipes (lateral end pressure: 1 bar)



**Drip Length : 32,1 mm**  
**Drip Inside Diameter : 11,7 mm**  
**Drip Outside Diameter : 15,9 mm**  
**Number of Water Out Hole : 2-4**

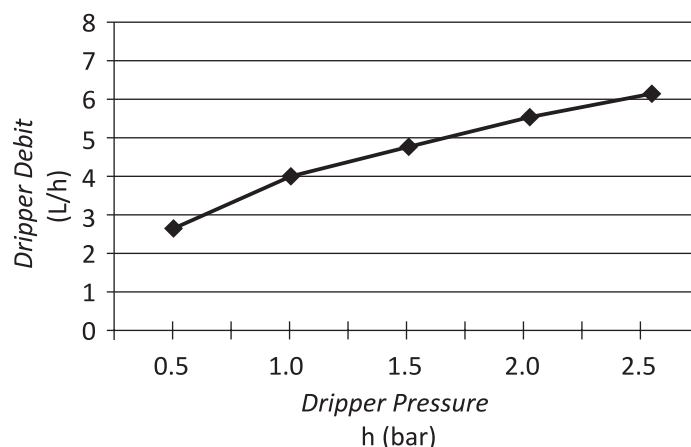
Dripper Space (cm)	Flow Rate Change q (değişim) %	Lateral Length (m)						
		Without Slope	Down Slope			Above Slope		
		% 0	% 1	% 2	% 3	% 1	% 2	% 3
20	10	49	52	55	57	46	42	39
	15	59	61	64	66	56	53	50
	20	67	70	72	74	64	62	59
25	10	58	62	65	69	53	49	45
	15	69	73	76	79	65	61	57
	20	79	82	85	88	75	72	68
33	10	71	77	82	87	64	57	51
	15	84	90	94	99	78	72	67
	20	97	102	106	110	91	86	80
40	10	81	89	96	102	72	64	56
	15	97	104	110	116	89	81	74
	20	117	118	123	129	104	96	90
50	10	96	107	116	124	83	72	62
	15	114	124	132	140	103	93	83
	20	131	140	148	155	121	111	102
60	10	109	123	134	145	93	79	66
	15	130	143	154	163	116	103	91
	20	149	161	170	180	136	124	112
75	10	128	147	163	178	107	87	71
	15	153	170	185	199	134	116	100
	20	176	191	205	218	158	140	125
100	10	158	186	209	222	125	98	77
	15	189	214	236	257	159	133	111
	20	217	240	260	280	189	164	143



Our round drips with labyrinth grooved long flow lined which are manufactured by our company are lateral in-line type. Our drips are placed into our soft polyethylene pipes which are named lateral at 20, 25, 33, 35, 40, 50, 60, 75, 100 cm spaces during the production. [Drawing 1]

## PRESSURE – FLOW RELATIONS OF OUR ROUND DRIP IRRIGATION PIPES

The average drip flow rates ( $q$ ) under the various working pressures of (4,0 L/h Flow rate) drips which take place inside of Ø 16 mm round drip irrigation pipes that have been tested, the drip parameters ( $k$ ,  $x$ ) which describes the drip features and the production disparities coefficient ( $V_m$ ) is shown in Chart 1 and the graphs showing the pressure - flow rate relations are shown in Chart 2.



Working Pressure	Average Drinker Flow	Drinker Parameters ( $q=kx$ )		Estimation Coefficient	Production Difference Coefficient
$h$ (Bar)	$q$ (L/h)	$k^*$	$k^{**}$	$R^2$	$V_m$
0,5	2,66	3,855	0,515	0,995	0,0139
1,0	3,95				
1,5	4,79				
2,0	5,48				
2,5	6,12				

(\*) Drinker Dimensions characterization coefficient

(\*\*) Drinker flow coefficient

**Chart 1:** The average drip flow rates under the various working pressures of (4,0 L/h Flow) drips belong to our Ø 16 mm round drip irrigation pipes, the drip parameters and the production disparities coefficient

**Chart 2:** The pressure - Flow rate relations belong to the (4,0 L/h Flow) drips of our Ø 16 mm round drip irrigation pipes



As it is seen in Chart 1, the production disparities coefficient of our 4,0 L/h flow drips of our Ø 16 mm round drip irrigation pipes that have been tested, its production disparities coefficient has been found as  $V_m = 0,0249$ ; this value takes place within the "EXCELLENT" limits according to the classification ascribed by ASABE (American Society Of Agricultural and Biological Engineers) Standards.

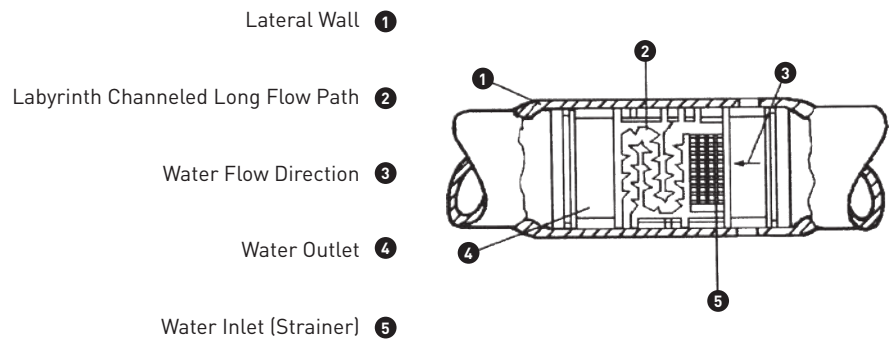
The optimum lateral lengths to provide equal water distribution at various operation conditions (operation pressure and slope) of our Ø 16 mm external diameter, 4,0 L/h flow Round Drip irrigation pipes are given in Chart 3.

**Chart 3:** The optimum lateral lengths to provide equal water distribution at various operation conditions of our Ø 16 mm external diameter, 4,0 L/h flow Round Drip Irrigation Pipes (lateral end pressure: 1 bar)



**Drip Length** : 32, 1 mm  
**Drip Inside Diameter** : 11,7 mm  
**Drip Outside Diameter** : 15,9 mm  
**Number of Water Out Hole** : 2-4

Dripper Space (cm)	Flow Rate Change q (değişim) %	Lateral Length (m)					
		Without Slope		Down Slope		Above Slope	
		% 0	% 1	% 2	% 3	% 1	% 2
20	10	30	31	32	33	28	27
	15	35	36	37	38	34	33
	20	40	41	42	43	39	38
25	10	35	37	38	40	33	31
	15	42	43	45	46	40	38
	20	47	49	50	51	46	44
33	10	43	45	48	50	40	37
	15	51	53	55	57	48	46
	20	58	60	62	64	55	53
40	10	49	52	56	58	45	42
	15	58	62	64	67	55	52
	20	66	70	72	74	63	60
50	10	58	63	67	71	53	48
	15	69	73	77	80	64	60
	20	79	83	86	89	74	70
60	10	66	72	77	82	59	53
	15	79	84	89	93	72	67
	20	89	95	99	103	84	79
75	10	77	86	93	100	68	59
	15	92	100	107	113	84	76
	20	105	113	119	125	98	90
100	10	96	108	119	128	81	69
	15	114	125	135	144	101	89
	20	130	140	149	158	118	107



Our round drips with labyrinth grooved long flow lined which are manufactured by our company are lateral in-line type. Our drips are placed into our soft polyethylene pipes which are named lateral at 20, 25, 33, 35, 40, 50, 60, 75, 100 cm spaces during the production. (Drawing 1)



## INTERNAL DRIPPER PIPE (400 METERS / ROLL)



Product Code	Product Code	Product Code	Diameter	Wall Thickness	Flow	Dripper Spaces	Roll Length	Roll Type
2,0 L/h	4,0 L/h	8,0 L/h	mm	mm	L/h	cm	m	
116-09-20-020	116-09-40-020	116-09-80-020	16	0,9	2,0 4,0 8,0	20	400	R-1
116-09-20-025	116-09-40-025	116-09-80-025				25		
116-09-20-033	116-09-40-033	116-09-80-033				33		
116-09-20-040	116-09-40-040	116-09-80-040				40		
116-09-20-050	116-09-40-050	116-09-80-050				50		
116-10-20-020	116-10-40-020	116-10-80-020				20		
116-10-20-025	116-10-40-025	116-10-80-025	16	1,0	2,0 4,0 8,0	25	400	R-1
116-10-20-033	116-10-40-033	116-10-80-033				33		
116-10-20-040	116-10-40-040	116-10-80-040				40		
116-10-20-050	116-10-40-050	116-10-80-050				50		

## DRIP IRRIGATION PIPE FOR EXTERNAL DRIPPERS



Product Code	Diameter	Wall Thickness	Roll Length	Roll Type
	mm	mm	m	
116-09-00-090	16	0.9	400	R-1
116-10-00-100	16	1.0	400	
120-12-00-120	20	1.2	300	R-2

## TECHNICAL INFORMATION



Erhas Flat Drip Irrigation Pipes (Tapes) are designed to provide the best performance for your crop. Options for drippers are in 3 different flow rates which are 1.0 l/h, 1.6 l/h and 2.2 l/h.

It is important to keep in mind that productiveness varies from soil's waterholding to crops' irrigation needs and choosing the best flow rate and dripper space for your crop.

Please contact us or our authorized distributors for further information about right product choice.

For Erhas Drip Irrigation Pipes, filter choice must comply with water source to be used. While choosing filter, type of water source, contamination rate of water, flow and pump outlet's diameter must be considered.

To use Erhas Drip Irrigation Pipes accordingly, water must be filtered at 130 micron - 120 mesh at filter outlet in your irrigation system. Particles bigger than this, block your drippers and prevents you to irrigate your crop. For Erhas Flat Drip Irrigation Pipes, only Erhas Filters are recommended.

Specified flow rates for Erhas Flat Drip Irrigation Pipes is at working pressure of 1 bar. At higher pressure than nominal pressure, continuous operation or called ram pressure which are instant pressure increases, may damage your drip irrigation pipes.

Erhas Flat Drip Irrigation Pipes have thin wall thickness and drippers inside. Drippers are fixated using a special technique in the pipes and for that reason, please do not throw your rolls while loading and unloading your vehicle or installing in a field. Stacking of the rolls, putting foreign matters like stones, gravels, concrete, pavement, sharp and damaging objects is not recommended. Birds and rodent may harm your pipes to stay hydrated.

In fields that are in areas not encircled and open, especially near roads, these problems can be seen commonly.

Erhas Flat Drip Irrigation Pipes are under warranty only against manufacturing defects. Our warranty does not cover external factors while loading, carriage, unloading, installing and in case of applying false installation by user.

Thank you for choosing Erhas.



### Ø 17 MM LENGTH OF RUN CHARTS

Nominal Flow	Dripper Spaces						
	10 cm	15 cm	20 cm	25 cm	30 cm	40 cm	50 cm
1.0 l/h	67	82	108	126	144	175	204
1.6 l/h	46	57	75	92	100	125	140
2.2 l/h	36	45	60	72	87	107	116

### Ø 22 MM LENGTH OF RUN CHARTS

Nominal Flow	Dripper Spaces						
	10 cm	15 cm	20 cm	25 cm	30 cm	40 cm	50 cm
1.0 l/h	116	144	186	214	249	300	348
1.6 l/h	81	101	130	152	174	216	239
2.2 l/h	72	90	112	126	148	182	211

### Ø 25 MM LENGTH OF RUN CHARTS

Nominal Flow	Dripper Spaces						
	10 cm	15 cm	20 cm	25 cm	30 cm	40 cm	50 cm
1.0 l/h	177	219	286	321	382	460	538
1.6 l/h	124	154	200	236	268	325	371
2.2 l/h	107	132	174	204	235	282	322

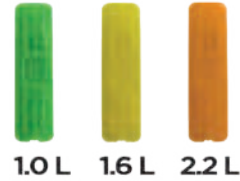


Given results are for 0% slope, 10% flow change and 1 bar pressure.

- Resistant Packaging to Sun Rays With Anti-UV Additive



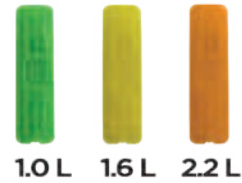




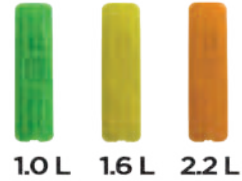
Product Code	Product Code	Product Code	Diameter	Wall Thickness	Flow	Dripper Spaces	Roll Length
1,0 L/h	1,6 L/h	2,2 L/h	mm	mil-mm	L/h	cm	m
017-06-10-010	017-06-16-010	017-06-22-010	17	6 mil 0,150 mm	1,0 1,6 2,2	10	1500
017-06-10-015	017-06-16-015	017-06-22-015				15	1900
017-06-10-020	017-06-16-020	017-06-22-020				20	1900
017-06-10-025	017-06-16-025	017-06-22-025				25	2100
017-06-10-030	017-06-16-030	017-06-22-030				30	2400
017-06-10-040	017-06-16-040	017-06-22-040				40	2600
017-06-10-050	017-06-16-050	017-06-22-050				50	2600
017-08-10-010	017-08-16-010	017-08-22-010		8 mil 0,200 mm		10	1200
017-08-10-015	017-08-16-015	017-08-22-015				15	1400
017-08-10-020	017-08-16-020	017-08-22-020				20	1600
017-08-10-025	017-08-16-025	017-08-22-025				25	1700
017-08-10-030	017-08-16-030	017-08-22-030				30	1800
017-08-10-040	017-08-16-040	017-08-22-040				40	1900
017-08-10-050	017-08-16-050	017-08-22-050				50	1900
017-10-10-010	017-10-16-010	017-10-22-010		10 mil 0,250 mm		10	1000
017-10-10-015	017-10-16-015	017-10-22-015				15	1150
017-10-10-020	017-10-16-020	017-10-22-020				20	1300
017-10-10-025	017-10-16-025	017-10-22-025				25	1350
017-10-10-030	017-10-16-030	017-10-22-030				30	1400
017-10-10-040	017-10-16-040	017-10-22-040				40	1400
017-10-10-050	017-10-16-050	017-10-22-050				50	1500



## Ø 22 MM FLAT DRIP IRRIGATION PIPES (TAPES)



Product Code	Product Code	Product Code	Diameter	Wall Thickness	Flow	Dripper Spaces	Roll Length
1,0 L/h	1,6 L/h	2,2 L/h	mm	mil-mm	L/h	cm	m
022-08-10-010	022-08-16-010	022-08-22-010	22	8 mil 0,200 mm	1,0 1,6 2,2	10	1100
022-08-10-015	022-08-16-015	022-08-22-015				15	1250
022-08-10-020	022-08-16-020	022-08-22-020				20	1450
022-08-10-025	022-08-16-025	022-08-22-025				25	1550
022-08-10-030	022-08-16-030	022-08-22-030				30	1600
022-08-10-040	022-08-16-040	022-08-22-040				40	1700
022-08-10-050	022-08-16-050	022-08-22-050				50	1800
022-10-10-010	022-10-16-010	022-10-22-010		10 mil 0,250 mm		10	800
022-10-10-015	022-10-16-015	022-10-22-015				15	950
022-10-10-020	022-10-16-020	022-10-22-020				20	1000
022-10-10-025	022-10-16-025	022-10-22-025				25	1100
022-10-10-030	022-10-16-030	022-10-22-030				30	1100
022-10-10-040	022-10-16-040	022-10-22-040				40	1200
022-10-10-050	022-10-16-050	022-10-22-050				50	1200
022-12-10-010	022-12-16-010	022-12-22-010		12 mil 0,300 mm		10	650
022-12-10-015	022-12-16-015	022-12-22-015				15	750
022-12-10-020	022-12-16-020	022-12-22-020				20	800
022-12-10-025	022-12-16-025	022-12-22-025				25	850
022-12-10-030	022-12-16-030	022-12-22-030				30	850
022-12-10-040	022-12-16-040	022-12-22-040				40	900
022-12-10-050	022-12-16-050	022-12-22-050				50	900



Product Code	Product Code	Product Code	Diameter	Wall Thickness	Flow	Dripper Spaces	Roll Length
1,0 L/h	1,6 L/h	2,2 L/h	mm	mil-mm	L/h	cm	m
025-10-10-010	025-10-16-010	025-10-22-010	25	10 mil 0,250 mm	1,0 1,6 2,2	10	800
025-10-10-015	025-10-16-015	025-10-22-015				15	900
025-10-10-020	025-10-16-020	025-10-22-020				20	950
025-10-10-025	025-10-16-025	025-10-22-025				25	1100
025-10-10-030	025-10-16-030	025-10-22-030				30	1100
025-10-10-040	025-10-16-040	025-10-22-040				40	1150
025-10-10-050	025-10-16-050	025-10-22-050				50	1150
025-12-10-010	025-12-16-010	025-12-22-010		12 mil 0,300 mm		10	600
025-12-10-015	025-12-16-015	025-12-22-015				15	650
025-12-10-020	025-12-16-020	025-12-22-020				20	700
025-12-10-025	025-12-16-025	025-12-22-025				25	800
025-12-10-030	025-12-16-030	025-12-22-030				30	800
025-12-10-040	025-12-16-040	025-12-22-040				40	850
025-12-10-050	025-12-16-050	025-12-22-050				50	900
025-16-10-010	025-16-16-010	025-16-22-010		16 mil 0,400 mm		10	500
025-16-10-015	025-16-16-015	025-16-22-015				15	500
025-16-10-020	025-16-16-020	025-16-22-020				20	550
025-16-10-025	025-16-16-025	025-16-22-025				25	550
025-16-10-030	025-16-16-030	025-16-22-030				30	550
025-16-10-040	025-16-16-040	025-16-22-040				40	600
025-16-10-050	025-16-16-050	025-16-22-050				50	600



## DOVETAIL MINI VALVES



Product Code	Diameter	Packing Quantity		Box Type
		Bag	Box	
100-16-08-001	16 x 16	125	625	B-1
100-20-08-002	20 x 16	125	500	B-1
100-20-08-003	20 x 20	125	500	B-1

## DOVETAIL MINI VALVES WITH GASKET OUTLET



Product Code	Diameter	Packing Quantity		Box Type
		Bag	Box	
100-16-09-001	16 x 16	125	625	B-1
100-20-09-002	20 x 16	125	500	B-1
100-20-09-003	20 x 20	125	500	B-1

## DOVETAIL TAPE MINI VALVES



Product Code	Diameter	Packing Quantity		Box Type
		Bag	Box	
100-16-11-001	16 x 17	100	500	B-1
100-20-11-002	20 x 17	100	400	B-1
100-20-11-003	20 x 22	100	400	B-1



## MALE SCREWED DOVETAIL MINI VALVES

Product Code	Diameter	Packing Quantity		Box Type
	inch x mm	Bag	Box	
100-16-12-001	1/2 x 16	100	500	B-1
100-16-12-002	3/4 x 16	100	500	B-1
100-20-12-003	1/2 x 20	100	400	B-1
100-20-12-004	3/4 x 20	100	400	B-1



## MALE SCREWED TAPE MINI VALVES

Product Code	Diameter	Packing Quantity		Box Type
	inch x mm	Bag	Box	
100-17-13-001	1/2 x 17	80	400	B-1
100-17-13-002	3/4 x 17	80	400	B-1
100-22-13-003	1/2 x 22	80	320	B-1
100-22-13-004	3/4 x 22	80	320	B-1



## TAPE MINI VALVES

Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
100-17-14-001	17 x 17	80	400	B-1
100-22-14-001	22 x 22	80	320	B-1



## MALE SCREWED MINI VALVES WITH GASKET OUTLET



Product Code	Diameter inch x mm	Packing Quantity		Box Type
		Bag	Box	
100-16-15-001	1/2 x 16	100	500	B-1
100-16-15-002	3/4 x 16	100	500	B-1

## MALE SCREWED MINI VALVES WITH RING



Product Code	Diameter inch x mm	Packing Quantity		Box Type
		Bag	Box	
100-17-16-001	1/2 x 17	90	450	B-1
100-17-16-002	3/4 x 17	90	450	B-1
100-22-16-003	1/2 x 22	90	360	B-1
100-22-16-004	3/4 x 22	90	360	B-1
100-25-16-005	1/2 x 25	-	-	B-1
100-25-16-006	3/4 x 25	-	-	B-1
100-28-16-007	1/2 x 28	-	-	B-1
100-28-16-008	3/4 x 28	-	-	B-1

## MALE SCREWED MINI VALVES



Product Code	Diameter inch	Packing Quantity		Box Type
		Bag	Box	
100-16-17-001	1/2 x 1/2	80	400	B-1
100-16-17-002	3/4 x 3/4	80	400	B-1

## TAPE MINI VALVES WITH GASKET OUTLET

Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
100-16-10-001	16 x 17	100	500	B-1
100-20-10-002	20 x 17	100	400	B-1
100-20-10-003	20 x 22	100	400	B-1



## GASKET OUTLET MINI VALVES WITH RING

Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
100-16-18-001	16 x 17	100	500	B-1
100-16-18-002	16 x 22	100	400	B-1
100-20-18-003	20 x 22	100	400	B-1
100-20-18-004	20 x 25	-	-	B-1
100-25-18-005	25 x 25	-	-	B-1
100-25-18-006	25 x 28	-	-	B-1



## DOVETAIL MINI VALVES WITH RING

Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
100-16-19-001	16 x 17	100	500	B-1
100-16-19-002	16 x 22	100	400	B-1
100-20-19-003	20 x 22	100	400	B-1



## TAPE MINI VALVES WITH RING



Product Code	Diameter	Packing Quantity		Box Type
		Bag	Box	
100-17-20-001	17 x 17	90	450	B-1
100-17-20-002	17 x 22	90	360	B-1
100-22-20-003	22 x 22	90	360	B-1

## MINI VALVES WITH RING



Product Code	Diameter	Packing Quantity		Box Type
		Bag	Box	
100-17-21-001	17 x 17	100	500	B-1
100-22-21-002	22 x 22	100	400	B-1
100-25-21-003	25 x 25	-	-	B-1
100-28-21-004	28 x 28	-	-	B-1

## DOVETAIL MINI VALVES WITH LAY-FLAT OUTLET



Product Code	Diameter	Packing Quantity		Box Type
		Bag	Box	
100-16-22-001	1/2 x 16	80	400	B-1
100-20-22-002	1/2 x 20	80	320	B-1



## TAPE MINI VALVES WITH LAY-FLAT OUTLET

Product Code	Diameter	Packing Quantity		Box Type
	inch x mm	Bag	Box	
100-17-23-001	1/2 x 17	60	300	B-1
100-22-23-001	1/2 x 22	60	240	B-1



## LAY-FLAT OUTLET MINI VALVES WITH RING

Product Code	Diameter	Packing Quantity		Box Type
	inch x mm	Bag	Box	
100-17-24-001	1/2 x 17	70	350	B-1
100-22-24-001	1/2 x 22	70	280	B-1
100-25-24-001	1/2 x 25	-	-	B-1
100-28-24-001	1/2 x 28	-	-	B-1



## MALE SCREWED MINI VALVES WITH LAY-FLAT OUTLET

Product Code	Diameter	Packing Quantity		Box Type
	inch	Bag	Box	
100-16-25-001	1/2 x 1/2	60	300	B-1



## DRIP IRRIGATION FITTING NIPPLE



Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
150-16-01-001	16 x 16	550	2200	B-1
150-20-01-002	20 x 20	400	1600	B-1

## BARBED NIPPLE



Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
160-16-01-001	16 x 16	550	2200	B-1

## DRIP IRRIGATION OUTLET NIPPLE



Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
200-16-01-001	16 x 16	550	2200	B-1
200-20-01-002	20 x 20	400	1600	B-1

## BARBED-GROMMET NIPPLE

Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
220-16-01-001	16 x 16	550	2200	B-1



## DRIP IRRIGATION TE

Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
250-16-03-001	16 x 16 x 16	350	1400	B-1
250-20-03-002	20 x 16 x 20	225	900	B-1
250-20-03-003	20 x 20 x 20	200	800	B-1



## DRIP IRRIGATION ELBOW

Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
300-16-04-001	16 x 16	550	2200	B-1
300-20-04-002	20 x 20	350	1400	B-1





## DRIP IRRIGATION REDUCTION



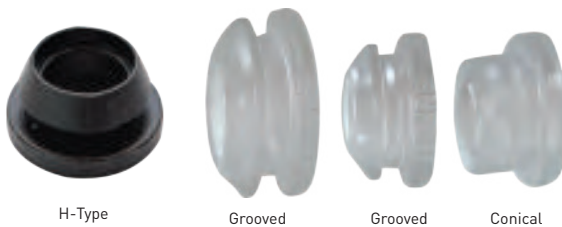
Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
500-20-08-001	20 x 16	500	2000	B-1

## DRIP IRRIGATION STOPPERS



Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
400-16-06-001	16- Spectacle	750	3000	B-1
400-20-06-002	20- Spectacle	400	1600	B-1
350-16-05-001	16- Stopper	800	3200	B-1
210-16-01-001	16- Hole Plug	1100	4400	B-1

## DRIP IRRIGATION OUTLET GASKET



Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
450-16-20-001	16 Conical	1.100	4400	B-1
450-16-20-002	16 Grooved	1.100	4400	B-1
450-16-20-003	16 H-Type	1.100	4400	B-1
450-20-20-004	20 Grooved	1.000	4000	B-1
450-25-20-004	25 Grooved	750	3000	B-1

## DRIP IRRIGATION FITTING NIPPLE TAPE

Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
150-17-03-001	17 x 17	200	800	B-1



## DRIP IRRIGATION FITTING NIPPLE DOVETAIL TAPE

Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
200-17-01-001	16 x 17	300	1200	B-1



## DRIP IRRIGATION OUTLET NIPPLE TAPE

Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
250-17-02-001	16 x 17	300	1200	B-1



## LAY-FLAT OUTLET NIPPLE

Product Code	Diameter	Packing Quantity		Box Type
	inch	Bag	Box	
100-16-00-004	1/2"	350	1400	B-1



## MAIN PIPE PERFORATION TOOL (MANUAL)



Product Code	Diameter	Packing Quantity		Box Type
		Bag	Box	
950-14-01-001	14	50	300	B-1
950-16-01-001	16	50	300	B-1
950-20-01-001	20	50	300	B-1
950-25-01-001	25	50	300	B-1

## MAIN PIPE PERFORATION TOOL (FOR DRILL)



Product Code	Diameter	Packing Quantity		Box Type
		Bag	Box	
950-14-01-002	14	100	300	B-1
950-16-01-002	16	100	300	B-1
950-20-01-002	20	100	300	B-1
950-25-01-002	25	100	300	B-1

## PERFORATION TOOL FOR DRIPPER



Product Code	Diameter	Packing Quantity		Box Type
		Bag	Box	
900-30-01-002	3,0	50	500	B-1

## TAPE COLLECTING ROLL

Product Code
900-30-01-100



## ADJUSTABLE DRIPPER NOZZLE

Product Code	Flow	Packing Quantity		Box Type
	L/h	Bag	Box	
160-30-01-070	0-70	2.000	8000	B-1
160-30-01-140	0-140	900	3600	B-1



## ON-LINE PC DRIPPER

Product Code	Flow	Packing Quantity		Box Type
	L/h	Bag	Box	
160-30-02-020	2	100	3400	B-1
160-30-02-040	4	100	3400	B-1
160-30-02-080	8	100	3400	B-1
160-30-02-120	12	100	3400	B-1
160-30-02-160	16	100	3400	B-1





## TE WITH RING AND GASKET OUTLET



Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
260-17-16-001	17 x 16 x 17	150	750	B-1
260-17-20-001	17 x 20 x 17	-	-	B-1
260-22-20-001	22 x 20 x 22	-	-	B-1
260-22-25-001	22 x 25 x 22	80	320	B-1
260-25-20-001	25 x 20 x 25	-	-	B-1
260-25-25-001	25 x 25 x 25	-	-	B-1

## MALE THREADED TE WITH RING



Product Code	Diameter	Packing Quantity		Box Type
	mm x inch x mm	Bag	Box	
270-17-01-001	17 x ½" x 17	150	750	B-1
270-22-01-001	22 x ½" x 22	-	-	B-1
270-25-01-001	25 x ½" x 25	-	-	B-1

## NIPPLE WITH RING



Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
150-017-17-001	17 x 17	400	1600	B-1
150-022-22-001	22 x 22	200	800	B-1
150-025-25-001	25 x 25	200	800	B-1
150-028-28-001	28 x 28	150	600	B-1

## STOPPER WITH RING

Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
350-17-05-001	17	500	2000	B-1
350-22-05-001	22	250	1000	B-1



## DOVETAIL NIPPLE WITH RING

Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
250-17-16-001	17 x 16	500	2000	B-1
250-22-20-001	22 x 20	200	800	B-1



## NIPPLE WITH GASKET OUTLET AND RING

Product Code	Diameter	Packing Quantity		Box Type
	mm	Bag	Box	
200-17-16-001	17 x 16	500	2000	B-1
200-22-20-001	22 x 20	200	800	B-1
200-20-25-001	20 x 25	200	800	B-1
200-25-25-001	25 x 25	200	800	B-1
200-25-28-001	25 x 28	150	600	B-1









# FILTER SYSTEMS



**WIPO | PCT**  
The International  
Patent System



- Fixed Cyclone Circle.
- Easy Cleaning Cartridge.

- Extra Leak-Proof Parts.
- Wide Filtration Surface.

**ERHAS<sup>®</sup>**  
IRRIGATION SYSTEMS



## FILTERS IN DRIP IRRIGATION

The filters which are indispensable of the drip irrigation systems take place between the pressure unit which is the heart of the drip irrigation system and the drip irrigation pipe. The lifetime of the laterals which are the most important parts of the drip irrigation is assessed according to their functional continuation of the drips which are placed on these laterals. The water pass channels which take place in the drips have been manufactured too narrow so as to diminish the energy of water and decrease the outlet pressure. This increases the partly or completely blockage risk of the drips. The blockage of these drips causes to end the function of the drip irrigation pipe. Therefore, the filtering group consists of a vital point in the system. At the meantime, it will demolish the product quantity and quality as this blockage risk will cause defects in equal water distribution. Hence, this will result the decrease of the product amount to be harvested from unit area.

## THE FUNCTIONS OF FILTERS IN GENERAL:

- To filter water with less pressure loss,
- To avoid solid matters run in,
- To throw the solid matters out of the system easily,
- To put the filter in the initial position after every back flush and consume less water during this operation.

## ISSUES TO BE CARED WHILE SELECTING FILTER:

The values such as

- The place where the water will be taken (well, lake, pool, etc.),
- The filthiness level of water (the density ratio of the pollutants such as grittiness and debris or moss),
- Flow rate of water,
- Diameter of pump outlet should be taken into consideration.

## THE CHARACTERISTICS REQUIRED IN A GOOD FILTER:

- To infiltrate water without decreasing the water flow;
- Not to miss the solid matters;
- To throw the solid matters that it holds out of the system easily;
- To consume very little water during the back flush;
- Not to facilitate the augmentation of the bacteria.

## DISC FILTER:

The filter with disc is consisted of synthetic discs which are seen to be overlapped on a column. These discs which function as a filter are tightened one above another. On the top and bottom surfaces of the discs are thin channels which set the filtering capability of the filter in micron level. These channels on the discs are on the opposite direction to each other. When the discs are put one above each other, the channels form many filtering layers which are cross wise. The water passing through these channels is infiltrated up to requested particle diameter.

## ISSUES TO BE CARED IN FILTER USE:

**A.** Before starting the pump, the filter should be checked whether it is blocked or not. For this purpose, the filter should be controlled to see if it is clean or not by opening the cover of disc or screen filter.

**B.** When the filter is blocked during the irrigation, the filter input pressure increases and the output pressure decreases. When it is noticed that 1 Bar or more difference occurs between the input and output pressures, the filter needs to be cleaned. The blockage of the filter which has only one pressure gauge is discovered when the pressure gauge starts shaking. The most important stage in the filtering systems is the cleaning process of the filters. This is an issue which would never be forgotten. This process should definitely be realized due to the fact that the drip pipes are not blocked.

## CLEANING OF THE FILTERS:

### A. Unmounting and cleaning:

When a pressure difference is seen between the system input and output in the single or having no back flush systems, the system is stopped. After the filter is unmounted, disc or screen part are cleaned, they are mounted again and the system is started.

### B. Back flush cleaning:

When there is pressure loss at the input and output of the system with the filter group having back flush valves in their system, the back flush valves are turned on and the accumulated particles in the system is thrown out by means of the valves and back flush.

### C. Automation system:

Carrying out the process by means of electronic circuits which perceives the pressure differences in the system of the back flush process.

## FILTER SELECTION IN TOO SANDY ENVIRONMENTS:

An excessive sand and debris may be seen especially due to the irrigation water taken from wells as the well is old or the use of bigger submersibles or the regional natures. In such environments, the use of hydro-cyclone is of a great importance so as to infiltrate the heavy sand particles in the system via cyclone movement for the purpose to enable the operation of our filter and duly functioning. According to the water flow, the hydro-cyclone may be single as well as being multi. The hydro-cyclone operates with the logic that the water moves in the system in cyclone movement. A disc or screen filter should be placed at the continuance of the system. That the hydro-cyclone systems which are selected as per the need are of reverse was manual or automatic constitutes of importance in terms of the productivity of the system.

## FILTER SELECTION IN WATER TAKEN FROM LAKES, WATER COURSES AND PONDS:

The sand filter, which is also called gravel tank or moss tank, should be used in capturing the matters such as moss, leaf, beetle, etc. which are not wanted coming from the water source. The quartz sand which is consisted of various layers carries out the capturing function in these tanks. The system should be supported by a disc or screen filter afterwards. In case these systems are of by-pass, the back flush process should be realized manually or automatically by means of ancillary valves.

## FERTILIZER TANK:

The nutrient of the plant in fertilizing which forms an important place in increasing the productivity in drip irrigation is met by means of drips being given through the system. This system can also be applied through dosage pumps as well as the fertilizer is given to the system thanks to metal tanks. The fertilizing should be installed before disc or screen filter. Fertilizer's direct injection to the dripping system may cause blockage of the drips by the unsolved fertilizer particles.

## ISSUES TO BE CARED DURING THE FERTILIZING

- Basically, it is better to apply the phosphoric fertilizer to the soil directly in too much limed (hard) water. .
- The fertilizer irrigation should not be performed unless the system reaches to the full pressure and the all the lines are filled with water.
- The fertilizers to be used in the drip irrigation system should not be used without putting in fertilizer tank or without putting them in homogenous state. The fertilizer should be mixed in water properly and become a melt solution and provide the solid particle precipitated. Such application is not needed for potassium nitrate.
- The system should be operated at least 20-25 minute so as that the fertilizer in the system is completely discharged and given to the soil and make sure that the fertilizer in the tank is emptied fully.
- At the end of the irrigation season, the system should be operated with 0,05% $\text{HNO}_3$  (nitric acid) and a cleaning should be made; and HCL (hydraulic acid or  $\text{H}_2\text{SO}_4$  (sulfuric acid) should be used so as to prevent the blockages in the system.

## ISSUES TO BE CARED DURING ACID USE:

- Initially, it should be noted that the structures with acid will make reaction with water and the emitted gases should not be breathed directly.
- The tank is filled in 1\3 proportion and the acid is added in required rate and then water should be put on. (acid should not be directly put and then water should not be added)
- As the acid will go reaction with water, the cover of the tank should be closed after waiting a certain ratio.
- After the mixture given to the system, the wash up with water should be carried out at least 15 minutes and the chemicals in the system and tank should be emptied completely.



## DOUBLE PLASTIC DISC FILTERS

■ 130 micron / 120 mesh  
Connection Type



V: Victaulic

T: Threaded  
BSPT | NPT

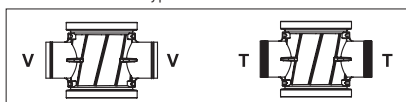


Connection Diameter	Product Code	Connection Type	Type	Capacity	Filtration Surface	Box Type
inch				m <sup>3</sup> /h	cm <sup>2</sup>	
3"	960-030-01-01	BSPT x BSPT	Short	70	2670	B-4
	960-030-01-11	NPT x NPT				
	960-030-01-02	V x V				
	960-030-02-01	BSPT x BSPT	Long	100	3615	B-5
	960-030-02-11	NPT x NPT				
	960-030-02-02	V x V				
4"	960-040-01-01	BSPT x BSPT	Short	70	2670	B-4
	960-040-01-11	NPT x NPT				
	960-040-01-02	V x V				
	960-040-02-01	BSPT x BSPT	Long	100	3615	B-5
	960-040-02-11	NPT x NPT				
	960-040-02-02	V x V				

## DOUBLE PLASTIC SCREEN FILTERS

■ 530 micron / 35 mesh  
■ 200 micron / 75 mesh  
Connection Type

■ 130 micron / 120 mesh  
■ 100 micron / 150 mesh



V: Victaulic

T: Threaded  
BSPT | NPT



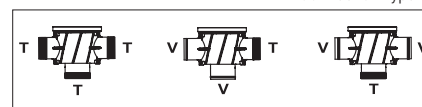
Connection Diameter	Product Code	Connection Type	Type	Capacity	Filtration Surface	Box Type
inch				m <sup>3</sup> /h	cm <sup>2</sup>	
3"	960-030-01-03	BSPT x BSPT	Short	70	2435	B-4
	960-030-01-13	NPT x NPT				
	960-030-01-04	V x V				
	960-030-02-03	BSPT x BSPT	Long	100	3245	B-5
	960-030-02-13	NPT x NPT				
	960-030-02-04	V x V				
4"	960-040-01-03	BSPT x BSPT	Short	70	2435	B-4
	960-040-01-13	NPT x NPT				
	960-040-01-04	V x V				
	960-040-02-03	BSPT x BSPT	Long	100	3245	B-5
	960-040-02-13	NPT x NPT				
	960-040-02-04	V x V				

Filter clamps are produced of engineering plastic.

# SINGLE PLASTIC DISC FILTERS



130 micron / 120 mesh  
Connection Type



V: Victaulic

T: Threaded  
BSPT | NPT

Connection Diameter	Product Code	Connection Type	Type	Capacity	Filtration Surface	Box Type
inch				m <sup>3</sup> /h	cm <sup>2</sup>	
2"	910-020-01-01	BSPT x BSPT x BSPT	Short	40	1335	B-3
	910-020-01-11	NPT x NPT x NPT				
	910-020-01-02	V x V x BSPT				
	910-020-01-12	V x V x NPT				
	910-020-01-03	V x BSPT x V				
	910-020-01-13	V x NPT x V				
	910-020-02-01	BSPT x BSPT x BSPT	Long	40	1810	B-3
	910-020-02-11	NPT x NPT x NPT				
	910-020-02-02	V x V x BSPT				
	910-020-02-12	V x V x NPT				
	910-020-02-03	V x BSPT x V				
	910-020-02-13	V x NPT x V				
2 1/2"	910-025-01-01	BSPT x BSPT x BSPT	Short	48	1335	B-3
	910-025-01-11	NPT x NPT x NPT				
	910-025-01-02	V x V x BSPT				
	910-025-01-12	V x V x NPT				
	910-025-01-03	V x BSPT x V				
	910-025-01-13	V x NPT x V				
	910-025-02-01	BSPT x BSPT x BSPT	Long	48	1810	B-3
	910-025-02-11	NPT x NPT x NPT				
	910-025-02-02	V x V x BSPT				
	910-025-02-12	V x V x NPT				
	910-025-02-03	V x BSPT x V				
	910-025-02-13	V x NPT x V				
3"	910-030-01-01	BSPT x BSPT x BSPT	Short	55	1335	B-3
	910-030-01-11	NPT x NPT x NPT				
	910-030-01-02	V x V x BSPT				
	910-030-01-12	V x V x NPT				
	910-030-01-03	V x BSPT x V				
	910-030-01-13	V x NPT x V				
	910-030-02-01	BSPT x BSPT x BSPT	Long	55	1810	B-3
	910-030-02-11	NPT x NPT x NPT				
	910-030-02-02	V x V x BSPT				
	910-030-02-12	V x V x NPT				
	910-030-02-03	V x BSPT x V				
	910-030-02-13	V x NPT x V				

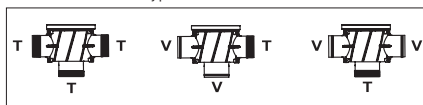
Filter clamps are produced of engineering plastic.



## SINGLE PLASTIC SCREEN FILTERS

■ 530 micron / 35 mesh      ■ 130 micron / 120 mesh  
■ 200 micron / 75 mesh      ■ 100 micron / 150 mesh

Connection Type



V: Victaulic

T: Threaded  
BSPT | NPT



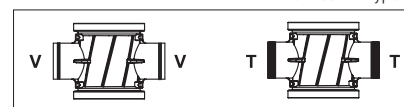
Connection Diameter	Product Code	Connection Type	Type	Capacity	Filtration Surface	Box Type
inch				m <sup>3</sup> /h	cm <sup>2</sup>	
2"	910-020-01-04	BSPT x BSPT x BSPT	Short	40	1210	B-3
	910-020-01-14	NPT x NPT x NPT				
	910-020-01-05	V x V x BSPT				
	910-020-01-15	V x V x NPT				
	910-020-01-06	V x BSPT x V				
	910-020-01-16	V x NPT x V				
	910-020-02-04	BSPT x BSPT x BSPT	Long	40	1620	B-3
	910-020-02-14	NPT x NPT x NPT				
	910-020-02-05	V x V x BSPT				
	910-020-02-15	V x V x NPT				
	910-020-02-06	V x BSPT x V				
	910-020-02-16	V x NPT x V				
2 1/2"	910-025-01-04	BSPT x BSPT x BSPT	Short	48	1210	B-3
	910-025-01-14	NPT x NPT x NPT				
	910-025-01-05	V x V x BSPT				
	910-025-01-15	V x V x NPT				
	910-025-01-06	V x BSPT x V				
	910-025-01-16	V x NPT x V				
	910-025-02-04	BSPT x BSPT x BSPT	Long	48	1620	B-3
	910-025-02-14	NPT x NPT x NPT				
	910-025-02-05	V x V x BSPT				
	910-025-02-15	V x V x NPT				
	910-025-02-06	V x BSPT x V				
	910-025-02-16	V x NPT x V				
3"	910-030-01-04	BSPT x BSPT x BSPT	Short	55	1210	B-3
	910-030-01-14	NPT x NPT x NPT				
	910-030-01-05	V x V x BSPT				
	910-030-01-15	V x V x NPT				
	910-030-01-06	V x BSPT x V				
	910-030-01-16	V x NPT x V				
	910-030-02-04	BSPT x BSPT x BSPT	Long	55	1620	B-3
	910-030-02-14	NPT x NPT x NPT				
	910-030-02-05	V x V x BSPT				
	910-030-02-15	V x V x NPT				
	910-030-02-06	V x BSPT x V				
	910-030-02-16	V x NPT x V				

Filter clamps are produced of engineering plastic.

## DOUBLE PLASTIC DISC FILTERS



130 micron / 120 mesh ■  
Connection Type



V: Victaulic

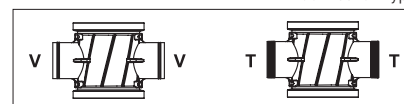
T: Threaded  
BSPT | NPT

Connection Diameter	Product Code	Connection Type	Type	Capacity	Filtration Surface	Box Type
inch				m <sup>3</sup> /h	cm <sup>2</sup>	
3"	950-030-01-01	BSPT x BSPT	Short	70	2670	B-4
	950-030-01-11	NPT x NPT				
	950-030-01-02	V x V				
	950-030-02-01	BSPT x BSPT	Long	100	3615	B-5
	950-030-02-11	NPT x NPT				
	950-030-02-02	V x V				
4"	950-040-01-01	BSPT x BSPT	Short	70	2670	B-4
	950-040-01-11	NPT x NPT				
	950-040-01-02	V x V				
	950-040-02-01	BSPT x BSPT	Long	100	3615	B-5
	950-040-02-11	NPT x NPT				
	950-040-02-02	V x V				



## DOUBLE PLASTIC SCREEN FILTERS

■ 530 micron / 35 mesh    ■ 130 micron / 120 mesh  
■ 200 micron / 75 mesh    ■ 100 micron / 150 mesh  
Connection Type



V: Victaulic

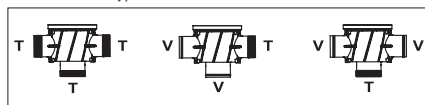
T: Threaded  
BSPT | NPT

Connection Diameter	Product Code	Connection Type	Type	Capacity	Filtration Surface	Box Type
inch				m <sup>3</sup> /h	cm <sup>2</sup>	
3"	950-030-01-03	BSPT x BSPT	Short	70	2435	B-4
	950-030-01-13	NPT x NPT				
	950-030-01-04	V x V				
	950-030-02-03	BSPT x BSPT	Long	100	3245	B-5
	950-030-02-13	NPT x NPT				
	950-030-02-04	V x V				
4"	950-040-01-03	BSPT x BSPT	Short	70	2435	B-4
	950-040-01-13	NPT x NPT				
	950-040-01-04	V x V				
	950-040-02-03	BSPT x BSPT	Long	100	3245	B-5
	950-040-02-13	NPT x NPT				
	950-040-02-04	V x V				

Filter clamps are produced of stainless steel.

## SINGLE PLASTIC DISC FILTERS

■ 130 micron / 120 mesh  
Connection Type



V: Victaulic

T: Threaded  
BSPT | NPT



Connection Diameter	Product Code	Connection Type	Type	Capacity	Filtration Surface	Box Type
inch				m <sup>3</sup> /h	cm <sup>2</sup>	
2"	900-020-01-01	BSPT x BSPT x BSPT	Short	40	1335	B-3
	900-020-01-11	NPT x NPT x NPT				
	900-020-01-02	V x V x BSPT				
	900-020-01-12	V x V x NPT				
	900-020-01-03	V x BSPT x V				
	900-020-01-13	V x NPT x V				
	900-020-02-01	BSPT x BSPT x BSPT	Long	40	1810	B-3
	900-020-02-11	NPT x NPT x NPT				
	900-020-02-02	V x V x BSPT				
	900-020-02-12	V x V x NPT				
	900-020-02-03	V x BSPT x V				
	900-020-02-13	V x NPT x V				
2 ½"	900-025-01-01	BSPT x BSPT x BSPT	Short	48	1335	B-3
	900-025-01-11	NPT x NPT x NPT				
	900-025-01-02	V x V x BSPT				
	900-025-01-12	V x V x NPT				
	900-025-01-03	V x BSPT x V				
	900-025-01-13	V x NPT x V				
	900-025-02-01	BSPT x BSPT x BSPT	Long	48	1810	B-3
	900-025-02-11	NPT x NPT x NPT				
	900-025-02-02	V x V x BSPT				
	900-025-02-12	V x V x NPT				
	900-025-02-03	V x BSPT x V				
	900-025-02-13	V x NPT x V				
3"	900-030-01-01	BSPT x BSPT x BSPT	Short	55	1335	B-3
	900-030-01-11	NPT x NPT x NPT				
	900-030-01-02	V x V x BSPT				
	900-030-01-12	V x V x NPT				
	900-030-01-03	V x BSPT x V				
	900-030-01-13	V x NPT x V				
	900-030-02-01	BSPT x BSPT x BSPT	Long	55	1810	B-3
	900-030-02-11	NPT x NPT x NPT				
	900-030-02-02	V x V x BSPT				
	900-030-02-12	V x V x NPT				
	900-030-02-03	V x BSPT x V				
	900-030-02-13	V x NPT x V				

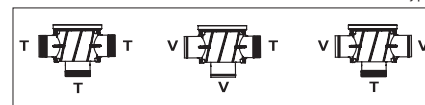
Filter clamps are produced of stainless steel.

## SINGLE PLASTIC SCREEN FILTERS



■ 530 micron / 35 mesh      ■ 130 micron / 120 mesh  
 ■ 200 micron / 75 mesh      ■ 100 micron / 150 mesh

Connection Type



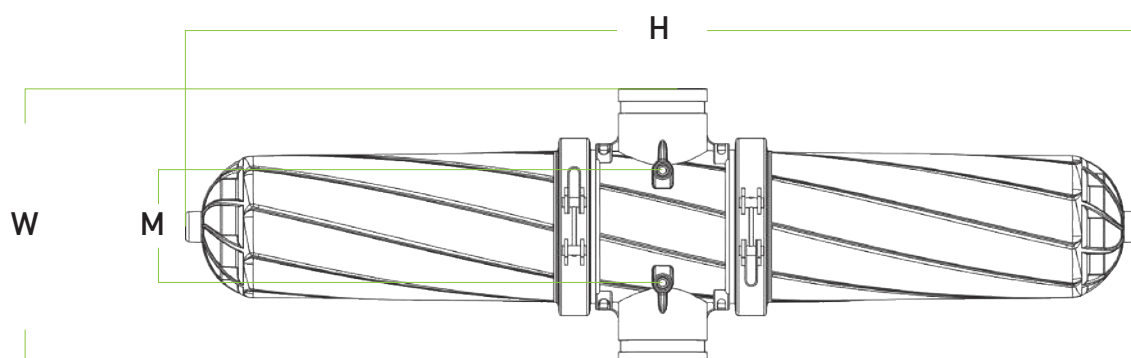
V: Victaulic

T: Threaded  
BSPT | NPT

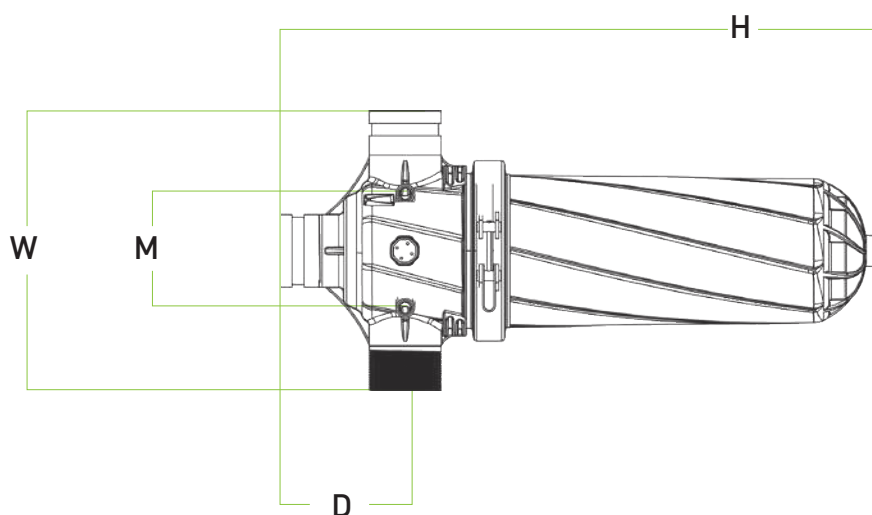
Connection Diameter	Product Code	Connection Type	Type	Capacity	Filtration Surface	Box Type
inch				m <sup>3</sup> /h	cm <sup>2</sup>	
2"	900-020-01-04	BSPT x BSPT x BSPT	Short	40	1210	B-3
	900-020-01-14	NPT x NPT x NPT				
	900-020-01-05	V x V x BSPT				
	900-020-01-15	V x V x NPT				
	900-020-01-06	V x BSPT x V				
	900-020-01-16	V x NPT x V				
	900-020-02-04	BSPT x BSPT x BSPT	Long	40	1620	B-3
	900-020-02-14	NPT x NPT x NPT				
	900-020-02-05	V x V x BSPT				
	900-020-02-15	V x V x NPT				
	900-020-02-06	V x BSPT x V				
	900-020-02-16	V x NPT x V				
2 1/2"	900-025-01-04	BSPT x BSPT x BSPT	Short	48	1210	B-3
	900-025-01-14	NPT x NPT x NPT				
	900-025-01-05	V x V x BSPT				
	900-025-01-15	V x V x NPT				
	900-025-01-06	V x BSPT x V				
	900-025-01-16	V x NPT x V				
	900-025-02-04	BSPT x BSPT x BSPT	Long	48	1620	B-3
	900-025-02-14	NPT x NPT x NPT				
	900-025-02-05	V x V x BSPT				
	900-025-02-15	V x V x NPT				
	900-025-02-06	V x BSPT x V				
	900-025-02-16	V x NPT x V				
3"	900-030-01-04	BSPT x BSPT x BSPT	Short	55	1210	B-3
	900-030-01-14	NPT x NPT x NPT				
	900-030-01-05	V x V x BSPT				
	900-030-01-15	V x V x NPT				
	900-030-01-06	V x BSPT x V				
	900-030-01-16	V x NPT x V				
	900-030-02-04	BSPT x BSPT x BSPT	Long	55	1620	B-3
	900-030-02-14	NPT x NPT x NPT				
	900-030-02-05	V x V x BSPT				
	900-030-02-15	V x V x NPT				
	900-030-02-06	V x BSPT x V				
	900-030-02-16	V x NPT x V				

Filter clamps are produced of stainless steel.

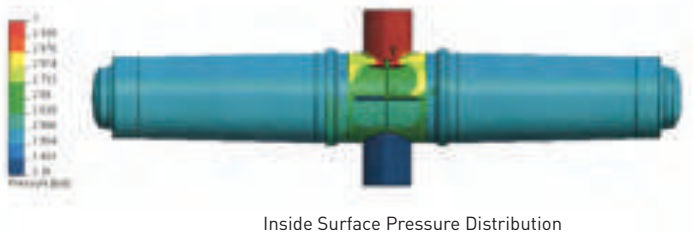
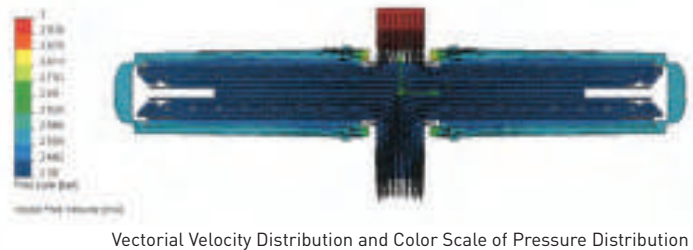
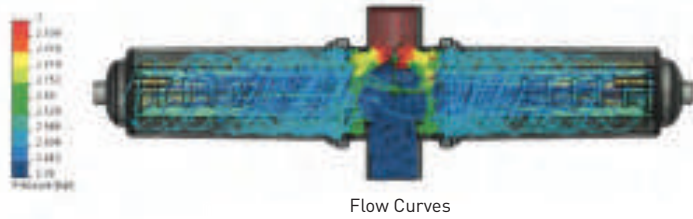
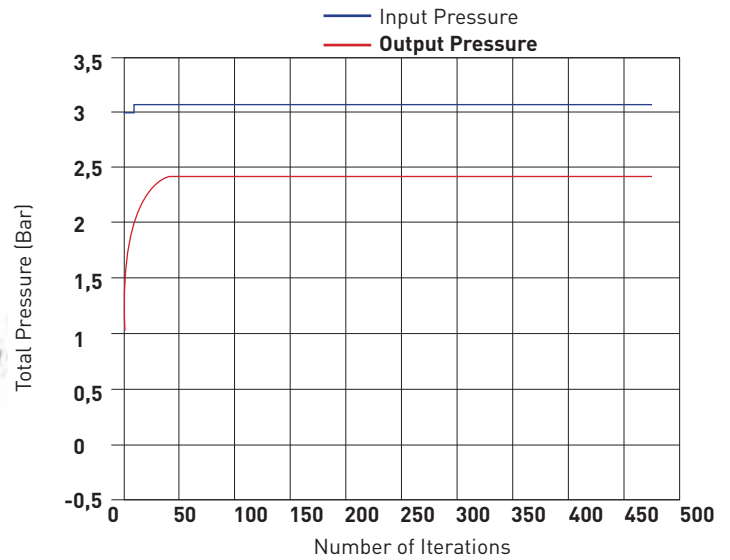




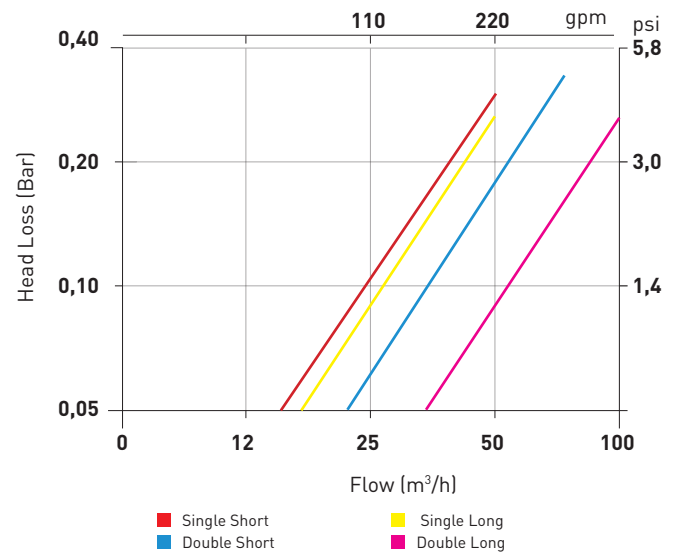
Connection Diameter	Type	W	H	M
inch		mm	mm	mm
3"	Short	340	960	140
	Long		1200	
4"	Short	340	960	140
	Long		1200	



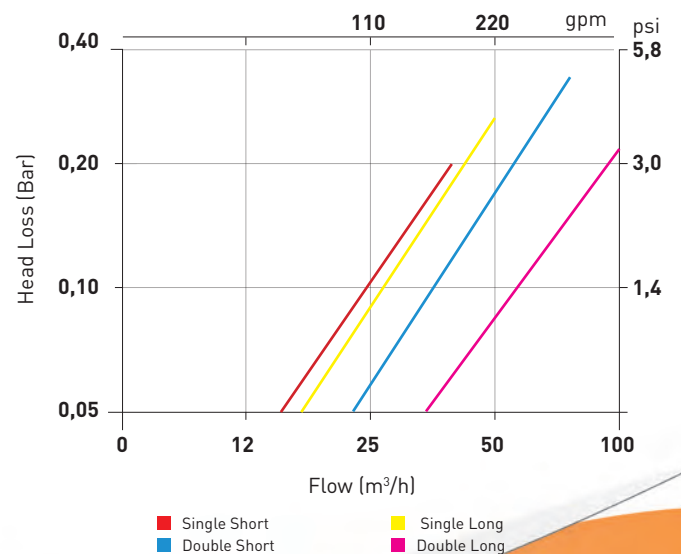
Connection Diameter	Type	W	H	M	D
inch		mm	mm	mm	mm
2"	Short	340	630	140	160
	Long		740		
2 1/2"	Short	340	630	140	160
	Long		740		
3"	Short	340	630	140	160
	Long		740		



### ERHAS PLASTIC DISC FILTERS HEAD LOSS



### ERHAS PLASTIC SCREEN FILTERS HEAD LOSS



## TECHNICAL SPECS

Body	Fiberglass reinforced polyamide
Cartridge	PP Disc Stainless steel screen
Clamp	Engineering Plastic Stainless steel
O rings	Rubber

✓ Given results are for 130 micron disc and screen cartridges.  
pH>4 | Maximum temperature 60 C | Maximum pressure 10 Bar



## Y TYPE DISC FILTERS +plus



T: Threaded  
BSPT | NPT

■ 130 micron / 120 mesh

Connection Diameter	Product Code	Connection Type	Capacity	Filtration Surface	Packing Quantity		Box Type
inch			m <sup>3</sup> /h	cm <sup>2</sup>	Bag	Box	
1 1/2"	800-112-01-01	BSPT x BSPT	20	559,20	1	15	B-2
	800-112-01-11	NPT x NPT					
2"	800-200-01-01	BSPT x BSPT	25	559,20	1	15	B-2
	800-200-01-11	NPT x NPT					

## Y TYPE DISC FILTERS midi



T: Threaded  
BSPT | NPT

■ 130 micron / 120 mesh

Connection Diameter	Product Code	Connection Type	Capacity	Filtration Surface	Packing Quantity		Box Type
inch			m <sup>3</sup> /h	cm <sup>2</sup>	Bag	Box	
1 1/4"	800-114-02-01	BSPT x BSPT	10	311,96	1	32	B-2
	800-114-02-11	NPT x NPT					
1 1/2"	800-112-02-01	BSPT x BSPT	15	311,96	1	32	B-2
	800-112-02-11	NPT x NPT					

## Y TYPE DISC FILTERS mini



T: Threaded  
BSPT | NPT

■ 130 micron / 120 mesh

Connection Diameter	Product Code	Connection Type	Capacity	Filtration Surface	Packing Quantity		Box Type
inch			m <sup>3</sup> /h	cm <sup>2</sup>	Bag	Box	
3/4"	800-034-03-01	BSPT x BSPT	6	172,25	1	60	B-2
	800-034-03-11	NPT x NPT					
1"	800-100-03-01	BSPT x BSPT	7	172,25	1	60	B-2
	800-100-03-11	NPT x NPT					



## Y TYPE SCREEN FILTERS **plus**

T: Threaded  
BSPT | NPT

■ 530 micron / 35 mesh  
■ 200 micron / 75 mesh

■ 130 micron / 120 mesh  
■ 100 micron / 150 mesh

Connection Diameter	Product Code	Connection Type	Capacity	Filtration Surface	Packing Quantity		Box Type
inch			m <sup>3</sup> /h	cm <sup>2</sup>	Bag	Box	
1 1/2"	800-112-01-02	BSPT x BSPT	20	525,43	1	15	B-2
	800-112-01-12	NPT x NPT					
2"	800-200-01-02	BSPT x BSPT	25	525,43	1	15	B-2
	800-200-01-12	NPT x NPT					



## Y TYPE SCREEN FILTERS **midi**

T: Threaded  
BSPT | NPT

■ 530 micron / 35 mesh  
■ 200 micron / 75 mesh

■ 130 micron / 120 mesh  
■ 100 micron / 150 mesh

Connection Diameter	Product Code	Connection Type	Capacity	Filtration Surface	Packing Quantity		Box Type
inch			m <sup>3</sup> /h	cm <sup>2</sup>	Bag	Box	
1 1/4"	800-114-02-02	BSPT x BSPT	10	322,54	1	32	B-2
	800-114-02-12	NPT x NPT					
1 1/2"	800-112-02-02	BSPT x BSPT	15	322,54	1	32	B-2
	800-112-02-12	NPT x NPT					



## Y TYPE SCREEN FILTERS **mini**

T: Dişli • Threaded  
BSPT | NPT

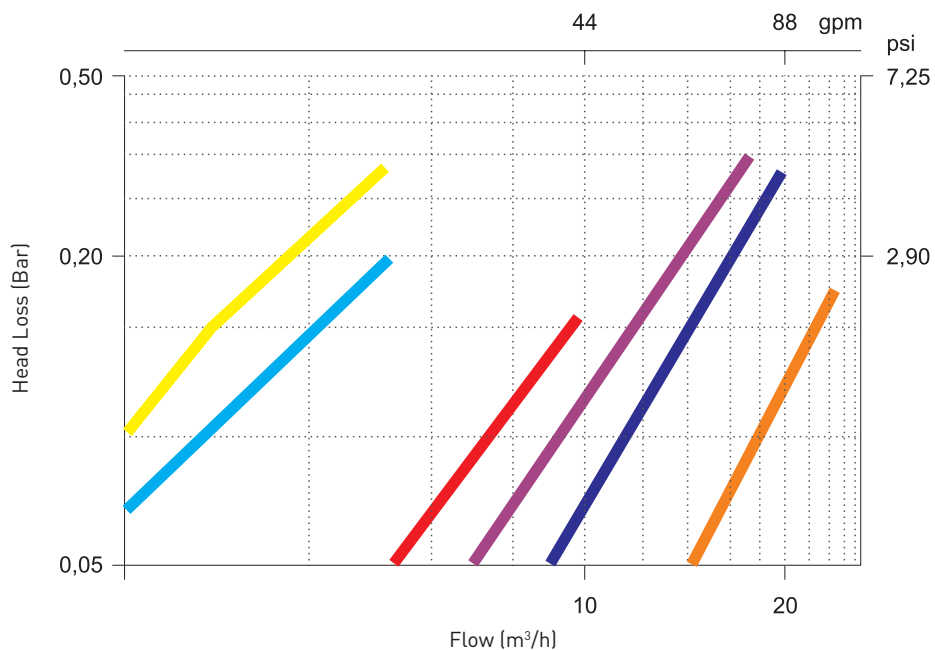
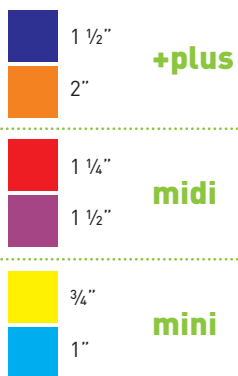
■ 530 micron / 35 mesh  
■ 200 micron / 75 mesh

■ 130 micron / 120 mesh  
■ 100 micron / 150 mesh

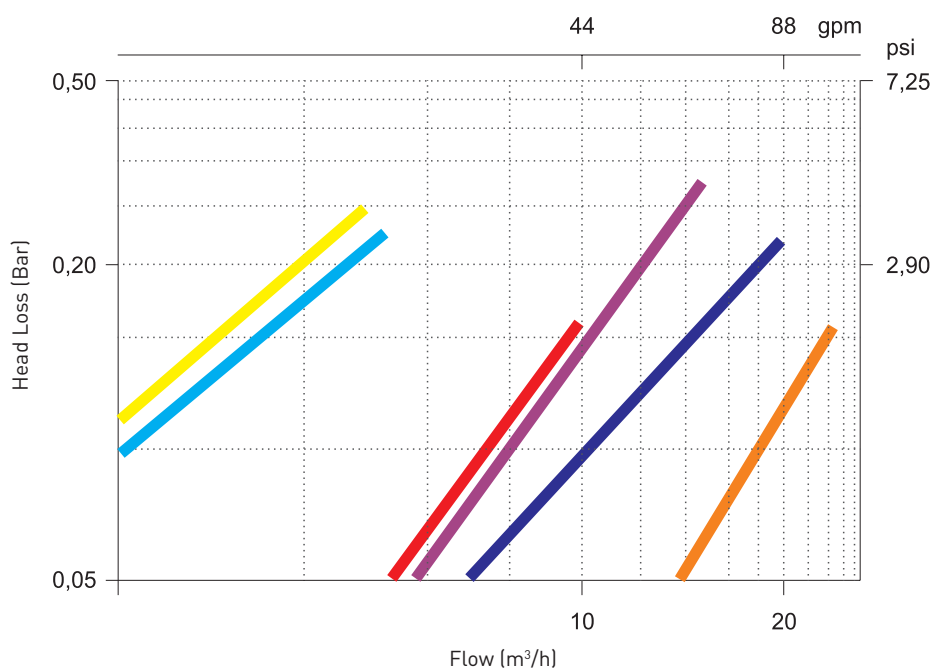
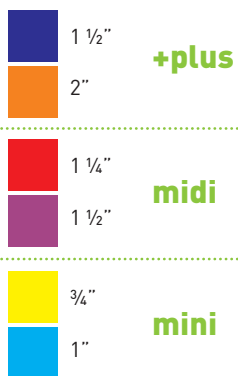
Connection Diameter	Product Code	Connection Type	Capacity	Filtration Surface	Packing Quantity		Box Type
inch			m <sup>3</sup> /h	cm <sup>2</sup>	Bag	Box	
3/4"	800-034-03-02	BSPT x BSPT	6	178,47	1	60	B-2
	800-034-03-12	NPT x NPT					
1"	800-100-03-02	BSPT x BSPT	7	178,47	1	60	B-2
	800-100-03-12	NPT x NPT					



## Y TYPE DISC FILTERS



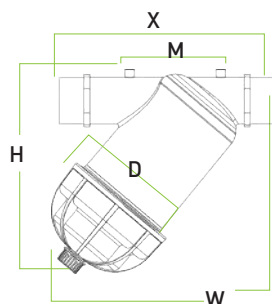
## Y TYPE SCREEN FILTERS



## TECHNICAL SPECS

Body	Polypropylene
Cartridge	PP Disc Stainless steel screen
O rings	Rubber

## DIMENSIONS



Type	Connection Diameter	X	W	M	H	D
	inch	mm	mm	mm	mm	mm
+plus	1 1/2" x 1 1/2"	263	275	110	250	143
	2" x 2"					
midi	1 1/4" x 1 1/4"	230	225	95	205	115
	1 1/2" x 1 1/2"					
mini	3/4" x 3/4"	170	182	70	170	93,5
	1" x 1"					

✓ Given results are for 130 micron disc and screen cartridges.  
pH>4 | Maximum temperature 60 C | Maximum pressure 10 Bar

## DISC CARTRIDGE FOR PLASTIC FILTER

130 micron / 120 mesh ■

Product Code	Product Dimensions	Packing Quantity	Box Type
	Type	Box	
999-234-00-01	2"-2½"-3"-4" Kısa	12	B-2
999-234-00-02	2"-2½"-3"-4" Uzun	8	B-2



## SCREEN CARTRIDGE

■ 530 micron / 35 mesh      130 micron / 120 mesh ■  
■ 200 micron / 75 mesh      100 micron / 150 mesh ■

Product Code	Product Dimensions	Packing Quantity	Box Type
	Type	Box	
997-020-00-01	12,5	60	B-2
997-025-00-01	25	28	B-2
997-030-00-01	37,5	16	B-2
997-040-00-01	50	12	B-2



## DISC CARTRIDGE FOR METAL FILTER

130 micron / 120 mesh ■

Product Code	Product Dimensions	Packing Quantity	Box Type
	Type	Box	
998-020-25-01	25	18	B-2
998-025-35-01	35	12	B-2
998-030-40-01	40	12	B-2
998-040-50-01	50	8	B-2
998-050-60-01	60	8	B-2



## DISC CARTRIDGE FOR Y TYPE FILTER

130 micron / 120 mesh ■

Product Code	Explanation	Packing Quantity	Box Type
		Box	
899-100-01-01	+plus	28	B-1
899-200-02-01	midi	54	B-1
899-300-03-01	mini	112	B-1



## SCREEN CARTRIDGE FOR Y TYPE FILTER

■ 530 micron / 35 mesh      130 micron / 120 mesh ■  
■ 200 micron / 75 mesh      100 micron / 150 mesh ■

Product Code	Explanation	Packing Quantity	Box Type
		Box	
897-100-01-02	+plus	28	B-1
897-200-02-02	midi	54	B-1
897-300-03-02	mini	112	B-1









# NEW GENERATION COMPRESSION FITTINGS



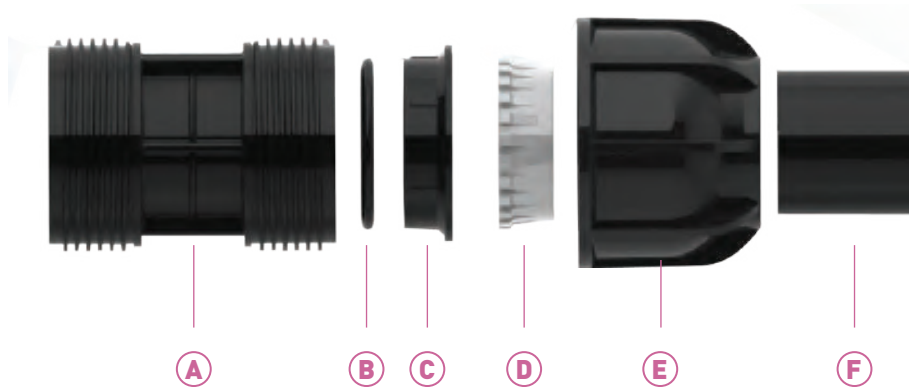
- European Registration Certificated Aesthetics Design.
- Time Saving With Quick Assembly.



- High Impact Resistance.
- Patented Conical Tightening and Leak-Proof.

**ERHAS<sup>®</sup>**  
IRRIGATION SYSTEMS





## TECHNICAL INFORMATION

Our products have ISO 3858 - ISO 1167/1 - ISO 1167/4 - ISO 3501- ISO 3503 - ISO 3459 ISO 13844 - ISO 13845 - ISO 1133/1 standards.

WORKING PRESSURE : **PN 16**

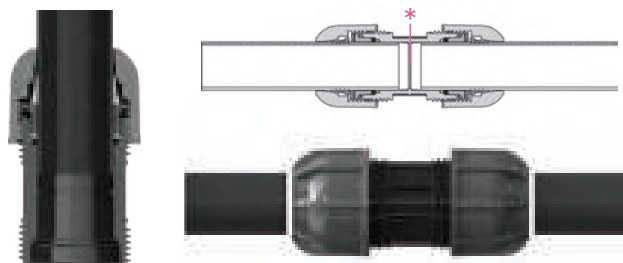
DIAMETER RANGE : **Ø20 - Ø110 MM**

- |                          |                   |                    |
|--------------------------|-------------------|--------------------|
| <b>(A)</b> BODY          | <b>(B)</b> O-RING | <b>(C)</b> BLOCKER |
| <b>(D)</b> CLAMPING PART | <b>(E)</b> NUT    | <b>(F)</b> PIPE    |

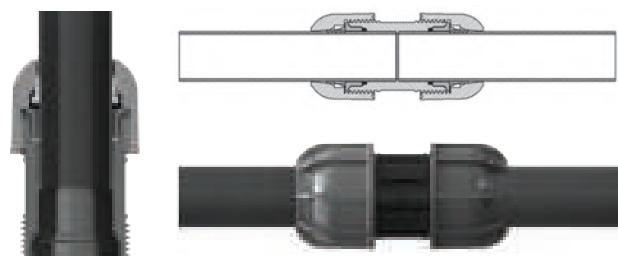
## ASSEMBLY METHOD OF COMPRESSION FITTINGS



Cut the pipe using a cutting tool in vertical position to the pipe axis. Make sure that no burr remains at the end of the pipe.



Loosen the nut of your compression fitting rotating approximately 4 full circles. Push the pipe properly until the **\*pipe retaining point inside the pipe.**



Tighten nut by hand (Tighten 32 mm and pipes bigger than 32 mm using ERHAS Coupling wrench)

## ERHAS NEW GENERATION COMPRESSION FITTINGS

### SPECIFICATIONS:

- Its raw material is polypropylene, its chemical resistance is formed of high polymers and its impact resistance is improved.
- It prevents the problems which may arise due to size differences up to  $\pm 0,5$  mm in the pipes or ovality with its PCT Patent Certificate conical tightening, easy-to-assemble and sealing features.
- Aesthetics design and visaulity with European registration certificate.
- It decreases the labor and material cost as it is easily fixed and unfixed.
- As it is light, its installation and transportation is easy.
- It is resistant to corrosion and does not cause any calcification and rusting.
- As it does not conduct UV (ultraviolet) rays, it does not allow mossing and bacterial growth.
- The interior surfaces are of homogenous and non-porous and is harmless as it contains no foreign matters. It does not change the odor and flavor of water.
- It is high impact resistance. It is resistant to pulsed pressures.
- Its o-ring is made of natural rubber and provides high sealing.
- Clamping Part is made of polyacetal.

### AREAS OF USAGE :

- City and drinking water
- Agricultural irrigation
- Greenhouses
- Landscape sector

**Guaranteed pressure values : Ø20 mm-Ø110 mm PN 16**

### USAGE INFORMATION

- The guaranteed pressure values of ERHAS Compression Fittings are valid for the installations whose air is discharged and which operate with water at 20° C.
- Straight thread connecting parts must be used with ERHAS Compression Fittings; conical thread connecting parts must not be used.
- The Erhas Compression Fittings must be kept away from hard and sharp objects during the storage and assembling. If the system is installed underground, it should be covered by using sand to protect from hard and sharp objects. The damaged Compression Fittings should never be used.
- ERHAS Compression Fittings should not be used with other liquids (acid, oil, etc) other than water.
- In order to obtain maximum productivity from ERHAS Compression Fittings, Elbows and Tees should be assembled to the pipe to make 90° angle and the other adapters 180° angle. The connections which create different angles will shorten the life of the system as they may cause tension on the Compression Fittings.
- Teflon band should be used with the connectors with thread. Teflon band should be wrapped on the direction of tightening of Compression Fitting to avoid water leakage. Using teflon band less may cause water leakage on the Compression Fitting and using more may cause an extra tension on it. This situation may cause a leakage in your system or breaking your Compression Fitting.
- ERHAS Compression Fittings are only compatible with their semi-products. A different O-ring, nut or clamping part you use with your Compression Fitting may cause a leakage in your system or breaking your Compression Fitting.
- After ERHAS Compression Fittings are produced, they are subjected to a pressure test and this test is realized with 1,5 times more than the guaranteed pressure value. The user should use average 2-3 bar less than these guaranteed values as a base. Because the pressure may go up to 12 – 13 bar during the opening – closing of the system or due to other factors (pump, motor, voltage changes, etc.) in a system to expose to 10 bar pressure. Therefore, operating a product which is guaranteed to 10 bar at the pressure value over 10 bar will tend to wear out the product much sooner. Hence, the products which may boost 2-3 bar extra pressure of the system pressure should be preferred while selecting the Compression Fittings.
- Tightening the nut excessively during the assembling will not prevent the leakage and even may cause an extra tension on the Compression Fitting. This extra tension may appear as a small elongation in white color on the nut during the assembling. A product which is exposed to an extra tension in this way cannot be expected to perform the guaranteed pressure values. Therefore, remember that the product is made of plastic and be tightened at the force only to provide a sealing.

### CONTROL OF THE INSTALLATION

#### 1- Visual Inspection ;

- Compression Fittings should certainly be controlled visually for determining the damaged Compression Fittings if there is any during the installation of the systems

#### 2-Control Of Sealing ;

- After the installation, the system should be checked with water in testing pressure to determine the water leakage.

#### 3-Conditions That May Cause Leakage ;

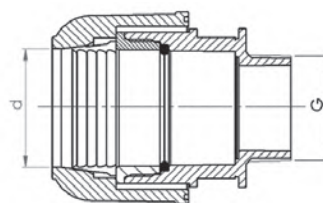
- The thread sizes of the ERHAS Compression Fittings are made according to standards.
- Not using the metal or plastic accessories which have suitable thread sizes for compression fittings.
- Not using the Teflon band at sufficient amount,
- The damage on the thread of the product because of tightening the product excessively or not assembled properly during the installation,
- The ovality in the pipe's being ( $\pm 0,5$ ) mm different from the given tolerance values,
- Wrong assembling of the nut, not being tightening at sufficient amount or crack in this product due to tightening excessively,
- Compression Fittings' installation by tightening the nut without combining the clamping part and blocker { O-ring holder } may cause leakage in the installation.



## MALE ADAPTER

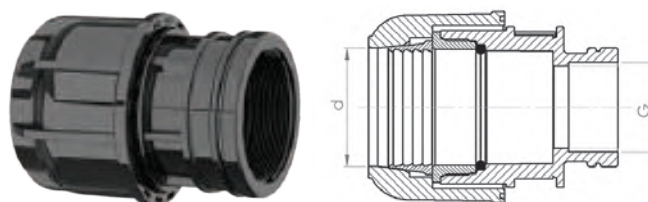
Box Type B-2

Sack Type S-1



Product Code	Diameter	Packing Quantity		
		Bag	Box	Sack
110-020-10001	20 x 1/2"	100	800	1000
110-020-10002	20 x 3/4"	100	800	1000
110-025-10005	25 x 1/2"	50	400	500
110-025-10006	25 x 3/4"	50	400	500
110-025-10007	25 x 1"	50	400	500
110-032-10011	32 x 1/2"	50	300	400
110-032-10012	32 x 3/4"	50	300	400
110-032-10013	32 x 1"	50	300	400
110-032-10014	32 x 1 1/4"	50	300	400
110-040-10021	40 x 1"	30	180	240
110-040-10022	40 x 1 1/4"	30	180	240
110-040-10023	40 x 1 1/2"	30	180	240
110-050-10032	50 x 1 1/4"	20	140	140
110-050-10033	50 x 1 1/2"	20	120	140
110-050-10035	50 x 2"	20	120	140
110-063-10044	63 x 1 1/4"	12	72	96
110-063-10045	63 x 1 1/2"	12	72	96
110-063-10047	63 x 2"	12	72	96
110-063-10049	63 x 2 1/2"	12	72	96
110-075-10059	75 x 2"	6	36	54
110-075-10061	75 x 2 1/2"	6	36	54
110-075-10063	75 x 3"	6	36	54
110-090-10075	90 x 2"	6	24	36
110-090-10077	90 x 2 1/2"	6	24	36
110-090-10079	90 x 3"	6	24	36
110-090-10083	90 x 4"	6	24	36
110-110-10091	110 x 2"	4	12	20
110-110-10093	110 x 2 1/2"	4	12	20
110-110-10095	110 x 3"	4	12	20
110-110-10099	110 x 4"	4	12	20

## FEMALE ADAPTER

**Box Type B-2**
**Sack Type S-1**


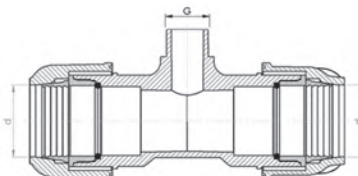
Product Code	Diameter	Packing Quantity		
		Bag	Box	Sack
110-020-11001	20 x 1/2"	100	800	1000
110-020-11002	20 x 3/4"	100	800	1000
110-025-11005	25 x 1/2"	50	400	500
110-025-11006	25 x 3/4"	50	400	500
110-025-11007	25 x 1"	50	400	500
110-032-11012	32 x 3/4"	50	250	350
110-032-11013	32 x 1"	50	250	350
110-032-11014	32 x 1 1/4"	50	250	350
110-040-11021	40 x 1"	20	140	200
110-040-11022	40 x 1 1/4"	20	140	200
110-040-11023	40 x 1 1/2"	20	140	200
110-050-11032	50 x 1 1/4"	15	90	120
110-050-11033	50 x 1 1/2"	15	90	120
110-050-11035	50 x 2"	15	90	120
110-063-11045	63 x 1 1/2"	12	72	96
110-063-11047	63 x 2"	12	72	96
110-063-11049	63 x 2 1/2"	12	72	96
110-075-11059	75 x 2"	6	36	54
110-075-11061	75 x 2 1/2"	6	36	54
110-075-11063	75 x 3"	6	36	54
110-090-11075	90 x 2"	6	24	30
110-090-11077	90 x 2 1/2"	6	24	30
110-090-11079	90 x 3"	6	24	30
110-090-11083	90 x 4"	6	24	30
110-110-11091	110 x 2"	4	12	20
110-110-11093	110 x 2 1/2"	4	12	20
110-110-11095	110 x 3"	4	12	20
110-110-11099	110 x 4"	4	12	20



## COUPLING MALE TE

Box Type B-2

Sack Type S-1

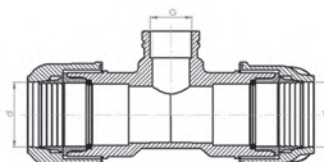


Product Code	Diameter	Packing Quantity		
		Bag	Box	Sack
110-020-15001	20 x ½" x 20	30	300	360
110-020-15002	20 x ¾" x 20	30	300	360
110-025-15005	25 x ½" x 25	20	160	200
110-025-15006	25 x ¾" x 25	20	160	200
110-025-15007	25 x 1" x 25	20	160	200
110-025-15008	25 x 1¼" x 25	20	160	200
110-032-15012	32 x ¾" x 32	20	120	140
110-032-15013	32 x 1" x 32	20	120	140
110-032-15014	32 x 1¼" x 32	20	120	140
110-040-15021	40 x 1" x 40	10	60	80
110-040-15022	40 x 1¼" x 40	10	60	80
110-040-15023	40 x 1½" x 40	10	60	80
110-050-15031	50 x 1" x 50	4	40	52
110-050-15032	50 x 1¼" x 50	4	40	52
110-050-15033	50 x 1½" x 50	4	40	52
110-050-15035	50 x 2" x 50	4	40	50
110-063-15044	63 x 1¼" x 63	4	24	32
110-063-15045	63 x 1½" x 63	4	24	32
110-063-15047	63 x 2" x 63	4	24	32
110-063-15049	63 x 2½" x 63	4	24	32
110-075-15059	75 x 2" x 75	2	12	18
110-075-15061	75 x 2½" x 75	2	12	18
110-075-15063	75 x 3" x 75	2	12	18
110-090-15077	90 x 2½" x 90	2	8	12
110-090-15079	90 x 3" x 90	2	8	12
110-090-15083	90 x 4" x 90	2	8	12
110-110-15093	110x2½"x110	2	4	8
110-110-15095	110 x 3" x 110	2	4	8
110-110-15099	110 x 4" x 110	2	4	8

## COUPLING FEMALE TE

Box Type B-2

Sack Type S-1



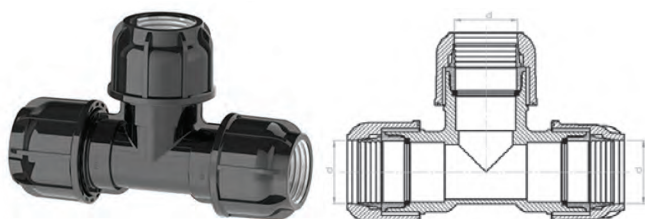
Product Code	Diameter	Packing Quantity		
		Bag	Box	Sack
110-020-16001	20 x 1/2" x 20	30	300	360
110-020-16002	20 x 3/4" x 20	30	300	360
110-025-16005	25 x 1/2" x 25	20	160	200
110-025-16006	25 x 3/4" x 25	20	160	200
110-025-16007	25 x 1" x 25	20	160	200
110-032-16011	32 x 1/2" x 32	20	100	140
110-032-16012	32 x 3/4" x 32	20	100	140
110-032-16013	32 x 1" x 32	20	100	140
110-032-16014	32 x 1 1/4" x 32	20	100	140
110-040-16020	40 x 3/4" x 40	10	60	80
110-040-16021	40 x 1" x 40	10	60	80
110-040-16022	40 x 1 1/4" x 40	10	60	80
110-040-16023	40 x 1 1/2" x 40	10	60	80
110-050-16030	50 x 3/4" x 50	4	36	48
110-050-16031	50 x 1" x 50	4	36	48
110-050-16032	50 x 1 1/4" x 50	4	36	48
110-050-16033	50 x 1 1/2" x 50	4	36	48
110-050-16035	50 x 2" x 50	4	36	48
110-063-16043	63 x 1" x 63	4	24	32
110-063-16044	63 x 1 1/4" x 63	4	24	32
110-063-16045	63 x 1 1/2" x 63	4	24	32
110-063-16047	63 x 2" x 63	4	24	32
110-063-16049	63 x 2 1/2" x 63	4	24	32
110-075-16059	75 x 2" x 75	2	12	18
110-075-16061	75 x 2 1/2" x 75	2	12	18
110-075-16063	75 x 3" x 75	2	12	18
110-090-16077	90 x 2 1/2" x 90	2	8	12
110-090-16079	90 x 3" x 90	2	8	12
110-090-16083	90 x 4" x 90	2	8	12
110-110-16093	110x2 1/2"x110	1	4	8
110-110-16095	110 x 3" x 110	1	4	8
110-110-16099	110 x 4" x 110	1	4	8



## COUPLING TE

Box Type B-2

Sack Type S-1



Product Code	Diameter	Packing Quantity		
		Bag	Box	Sack
110-020-13000	20 x 20 x 20	30	240	300
110-025-13004	25 x 25 x 25	20	120	180
110-032-13010	32 x 32 x 32	12	72	108
110-040-13018	40 x 40 x 40	10	60	80
110-050-13028	50 x 50 x 50	4	36	48
110-063-13040	63 x 63 x 63	4	24	32
110-075-13052	75 x 75 x 75	2	10	14
110-090-13068	90 x 90 x 90	2	6	8
110-110-13084	110x110x110	1	4	6

## COUPLING REDUCTION TE

Box Type B-2

Sack Type S-1

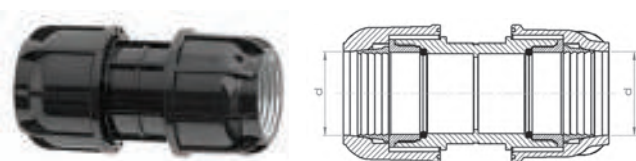


Product Code	Diameter	Packing Quantity		
		Bag	Box	Sack
110-020-14000	20 x 25 x 20	20	200	240
110-025-14004	25 x 20 x 25	20	160	200
110-025-14005	25 x 32 x 25	20	120	160
110-032-14010	32 x 20 x 32	10	90	120
110-032-14011	32 x 25 x 32	10	80	120
110-040-14019	40 x 25 x 40	10	80	90
110-040-14020	40 x 32 x 40	10	60	90
110-050-14029	50 x 25 x 50	4	40	48
110-050-14030	50 x 32 x 50	4	40	48
110-050-14031	50 x 40 x 50	4	40	48
110-063-14041	63 x 25 x 63	4	24	32
110-063-14042	63 x 32 x 63	4	24	32
110-063-14043	63 x 40 x 63	4	24	32
110-063-14044	63 x 50 x 63	4	24	32
110-075-14056	75 x 50 x 75	2	10	16
110-075-14057	75 x 63 x 75	2	10	16
110-090-14073	90 x 63 x 90	2	8	10
110-090-14074	90 x 75 x 90	2	8	10
110-110-14089	110 x 63 x 110	1	4	6
110-110-14091	110 x 90 x 110	1	4	6

## COUPLING SLEEVE

Box Type B-2

Sack Type S-1

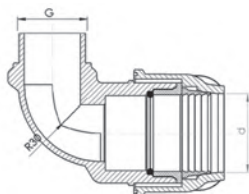


Product Code	Diameter	Packing Quantity		
		Bag	Box	Sack
110-020-22000	20 x 20	50	450	600
110-025-22004	25 x 25	50	300	350
110-032-22010	32 x 32	30	180	240
110-040-22018	40 x 40	20	80	140
110-050-22028	50 x 50	10	70	90
110-063-22040	63 x 63	8	48	56
110-075-22052	75 x 75	4	20	28
110-090-22068	90 x 90	4	16	20
110-110-22084	110 x 110	2	6	10

## COUPLING MALE ELBOW

Box Type B-2

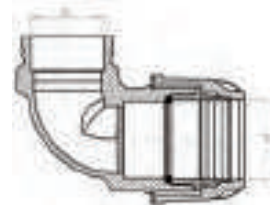
Sack Type S-1



## COUPLING FEMALE ELBOW

Box Type B-2

Sack Type S-1



Product Code	Diameter	Packing Quantity		
	d x G	Bag	Box	Sack
110-020-19001	20 x ½"	50	600	700
110-020-19002	20 x ¾"	50	600	700
110-025-19005	25 x ½"	30	360	420
110-025-19006	25 x ¾"	30	360	420
110-025-19007	25 x 1"	30	360	420
110-032-19012	32 x ¾"	20	180	240
110-032-19013	32 x 1"	20	180	240
110-032-19014	32 x 1¼"	20	180	240
110-040-19021	40 x 1"	10	120	140
110-040-19022	40 x 1 ¼"	10	120	140
110-040-19023	40 x 1 ½"	10	120	140
110-050-19032	50 x 1 ¼"	10	70	100
110-050-19033	50 x 1 ½"	10	70	100
110-050-19035	50 x 2"	10	70	100
110-063-19045	63 x 1 ½"	8	48	64
110-063-19047	63 x 2"	8	48	64
110-063-19049	63 x 2 ½"	8	48	64
110-075-19059	75 x 2"	4	24	32
110-075-19061	75 x 2 ½"	4	24	32
110-075-19063	75 x 3"	4	24	32
110-090-19077	90 x 2 ½"	2	14	18
110-090-19079	90 x 3"	2	14	18
110-090-19083	90 x 4"	2	14	18
110-110-19095	110 x 3"	2	8	14
110-110-19099	110 x 4"	2	8	14

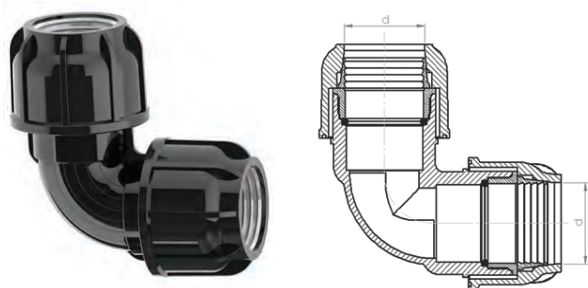
Product Code	Diameter	Packing Quantity		
	d x G	Bag	Box	Sack
110-020-20001	20 x ½"	50	600	700
110-020-20002	20 x ¾"	50	500	700
110-025-20005	25 x ½"	30	300	420
110-025-20006	25 x ¾"	30	300	420
110-025-20007	25 x 1"	30	300	420
110-032-20012	32 x ¾"	20	180	240
110-032-20013	32 x 1"	20	180	240
110-032-20014	32 x 1¼"	20	180	240
110-040-20021	40 x 1"	10	120	140
110-040-20022	40 x 1 ½"	10	120	140
110-040-20023	40 x 1 ½"	10	120	140
110-050-20032	50 x 1 ¼"	10	70	100
110-050-20033	50 x 1 ½"	10	70	100
110-050-20035	50 x 2"	10	70	100
110-063-20045	63 x 1 ½"	8	48	64
110-063-20047	63 x 2"	8	48	64
110-063-20049	63 x 2 ½"	8	48	64
110-075-20059	75 x 2"	4	24	32
110-075-20061	75 x 2 ½"	4	24	32
110-075-20063	75 x 3"	4	24	32
110-090-20077	90 x 2 ½"	2	14	18
110-090-20079	90 x 3"	2	14	18
110-090-20083	90 x 4"	2	14	18
110-110-20095	110 x 3"	2	8	14
110-110-20099	110 x 4"	2	8	14



## COUPLING ELBOW

Box Type B-2

Sack Type S-1

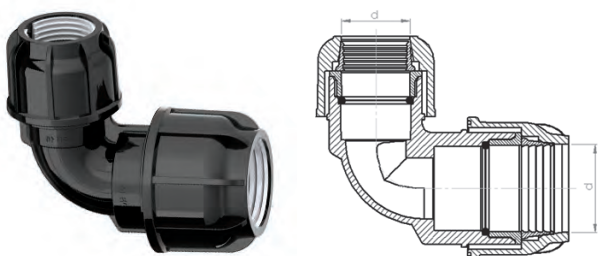


Product Code	Diameter	Packing Quantity		
		Bag	Box	Sack
110-020-18000	20 x 20	50	400	600
110-025-18004	25 x 25	30	210	270
110-032-18010	32 x 32	20	140	180
110-040-18018	40 x 40	12	72	108
110-050-18028	50 x 50	8	48	64
110-063-18040	63 x 63	8	32	48
110-075-18052	75 x 75	4	16	24
110-090-18068	90 x 90	2	10	16
110-110-18084	110 x 110	1	6	10

## COUPLING REDUCTION ELBOW

Box Type B-2

Sack Type S-1

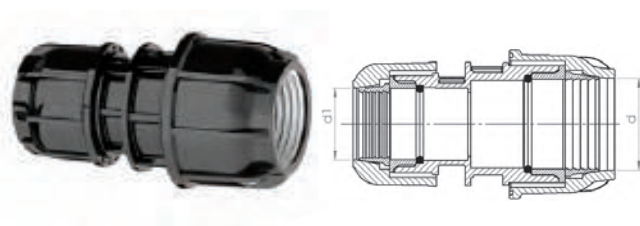


Product Code	Diameter	Packing Quantity		
		Bag	Box	Sack
110-025-21004	25 x 20	30	300	360
110-032-21011	32 x 25	20	160	200
110-040-21020	40 x 32	10	90	120
110-050-21031	50 x 40	8	64	80
110-063-21044	63 x 50	8	40	56
110-075-21057	75 x 63	4	24	32
110-090-21074	90 x 75	2	10	16
110-110-21091	110 x 90	2	8	12

## COUPLING REDUCTION SLEEVE

Box Type B-2

Sack Type S-1



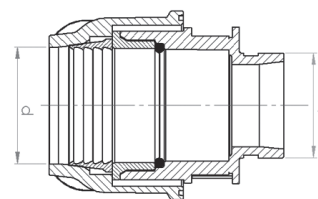
Product Code	Diameter	Packing Quantity		
		Bag	Box	Sack
110-025-23004	25 x 20	50	300	400
110-032-23010	32 x 20	20	200	240
110-032-23011	32 x 25	20	200	240
110-040-23018	40 x 20	20	120	180
110-040-23019	40 x 25	20	120	180
110-040-23020	40 x 32	20	120	180
110-050-23029	50 x 25	10	80	90
110-050-23030	50 x 32	10	80	90
110-050-23031	50 x 40	10	80	90
110-063-23041	63 x 25	10	60	70
110-063-23042	63 x 32	10	60	70
110-063-23043	63 x 40	10	60	70
110-063-23044	63 x 50	10	50	70
110-075-23056	75 x 50	3	27	36
110-075-23057	75 x 63	3	27	36
110-090-23073	90 x 63	3	18	24
110-090-23074	90 x 75	3	18	24
110-110-23089	110 x 63	2	8	14
110-110-23090	110 x 75	2	8	14
110-110-23091	110 x 90	2	8	14

## COUPLING SHOULDERED ADAPTER

Box Type B-2

Sack Type S-1

Product Code	Diameter	Packing Quantity		
	d x G	Bag	Box	Sack
110-063-12047	63 x 2"	12	72	96
110-110-12099	110 x 4"	4	12	20

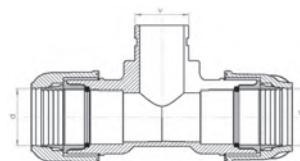


## COUPLING SHOULDERED TE ADAPTER

Box Type B-2

Sack Type S-1

Product Code	Diameter	Packing Quantity		
	d x G	Bag	Box	Sack
110-063-17047	63 x 2" x 63	4	24	32
110-110-17091	110 x 4" x 110	1	4	8

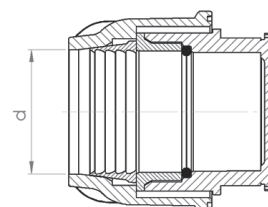


## COUPLING END CAP

Box Type B-2

Sack Type S-1

Product Code	Diameter	Packing Quantity		
	d x G	Bag	Box	Sack
110-020-24000	20	100	1.000	1100
110-025-24004	25	50	500	600
110-032-24010	32	50	300	400
110-040-24018	40	30	150	270
110-050-24028	50	16	112	144
110-063-24040	63	12	72	96
110-075-24052	75	6	36	54
110-090-24068	90	6	24	36
110-110-24084	110	4	12	20



## COUPLING WRENCH

Box Type B-1

Product Code	Diameter	Packing Quantity	
	d x G	Bag	Box
010-000-25000	20 - 25 - 32	5	150
010-000-25001	40 - 50 - 63 - 75	5	75
010-000-25002	90 - 110	5	40











# CLAMP SADDLES



TS ISO 13460-1

- Bolt Holder Nail System.
- Pipe Fixing Tightening Bumps.
- Leak-Proof O-ring System.

**ERHAS<sup>®</sup>**  
IRRIGATION SYSTEMS



Erhas Clamp Saddles are designed by making improvements for easy usage of the last user while considering the lack in the features of the products available in the market. It provides excellent leakproof by the help of strengthening has been made on its body and o-ring system. In order to ease working in the difficult field conditions Bolt Holder Nail System has been improved to prevent the fall of the bolts when they are in upsidedown position. Tightening bumps have been located on the inside surface for the purpose of fixing the pipe's rotation. Thanks to its gasket system designed in concave form, it prevents any problem may occur due to size differences in pipe diameters up to  $\pm 0.5$  mm or ovality.

• **Bolt Holder Nail System and Pipe Fixing Tightening Bumps are only available in single outlet clamp saddles concerning their manufacturing technics.** •



## USAGE INFORMATION

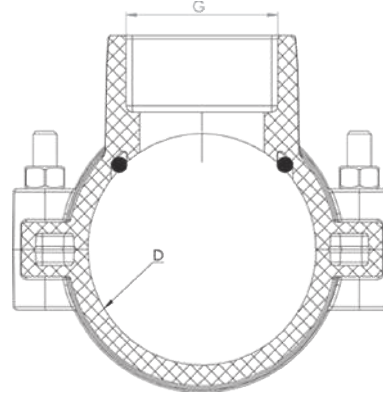
- The gasket should be placed in its socket carefully in order not to be unsettled during the installation.
- Male adaptors should be wrapped up with the teflon band with the wrenching direction and should be wrapped enough to prevent leakage.
- The process of drilling the pipe after the installation of clamp saddle may damage the threaded part. For this reason, the drilling should be implemented with a rather smaller dimensioned drill without contacting the threads.
- Cotters should be hammered or the bolts should be wrenched in order to prevent leakage in the clamp saddles.
- If the dimension of the installed pipe is bigger than the standard values, upper and lower body parts will not contact each other. Under these circumstances, there is no need to wrench the bolts till the upper and lower body parts contact or hammer the cotters to the end point. Otherwise an extra tension will be occurred over the product. This situation may have negative effect on the lifetime of your system as it might cause changes on the dimensions of the product. The dimensional differences especially on the threaded parts might block the installation of the male threaded adaptor.
- During the installation of the clamp saddles, the cotters and the bolts should be installed equally. Complete hammering a cotter or completely wrenching the bolts in one side of the saddle may cause an excessive force which might cause a break on the product.

## PN-10

### SINGLE OUTLET CLAMP SADDLE

Box Type B-2

Sack Type S-1



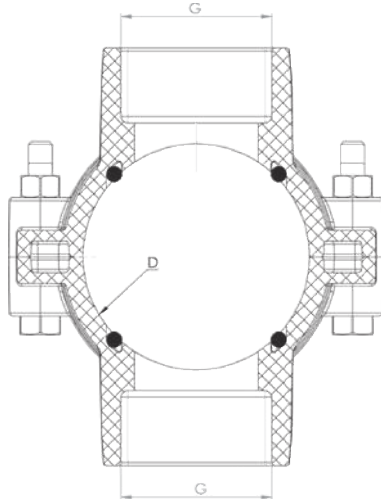
Product Code	Diameter	Packing Quantity	
	d x G	Box	Sack
010-025-50005	25 x 1/2"	400	600
010-032-50011	32 x 1/2"	350	500
010-032-50012	32 x 3/4"	350	500
010-040-50019	40 x 1/2"	250	400
010-040-50020	40 x 3/4"	250	400
010-050-50029	50 x 1/2"	180	200
010-050-50030	50 x 3/4"	180	200
010-050-50031	50 x 1"	180	200
010-063-50041	63 x 1/2"	150	200
010-063-50042	63 x 3/4"	150	200
010-063-50043	63 x 1"	150	200
010-063-50044	63 x 1 1/4"	150	200
010-063-50045	63 x 1 1/2"	150	200
010-075-50053	75 x 1/2"	100	150
010-075-50054	75 x 3/4"	100	150
010-075-50055	75 x 1"	100	150
010-075-50056	75 x 1 1/4"	100	150
010-075-50057	75 x 1 1/2"	100	150
010-075-50059	75 x 2"	100	150
010-090-50069	90 x 1/2"	75	100
010-090-50070	90 x 3/4"	75	100
010-090-50071	90 x 1"	75	100
010-090-50072	90 x 1 1/4"	75	100
010-090-50073	90 x 1 1/2"	75	100
010-090-50075	90 x 2"	75	100

Product Code	Diameter	Packing Quantity	
	d x G	Box	Sack
010-110-50085	110 x 1/2"	60	100
010-110-50086	110 x 3/4"	60	100
010-110-50087	110 x 1"	60	100
010-110-50088	110 x 1 1/4"	60	100
010-110-50089	110 x 1 1/2"	60	100
010-110-50091	110 x 2"	60	100
010-125-50102	125 x 3/4"	45	75
010-125-50103	125 x 1"	45	75
010-125-50104	125 x 1 1/4"	45	75
010-125-50105	125 x 1 1/2"	45	75
010-125-50107	125 x 2"	45	75
010-140-50118	140 x 3/4"	40	50
010-140-50119	140 x 1"	40	50
010-140-50120	140 x 1 1/4"	40	50
010-140-50121	140 x 1 1/2"	40	50
010-140-50123	140 x 2"	40	50
010-160-50134	160 x 3/4"	40	50
010-160-50135	160 x 1"	40	50
010-160-50136	160 x 1 1/4"	40	50
010-160-50137	160 x 1 1/2"	40	50
010-160-50139	160 x 2"	40	50
010-200-50150	200 x 3/4"	30	40
010-200-50151	200 x 1"	30	40
010-200-50152	200 x 1 1/4"	30	40
010-200-50153	200 x 1 1/2"	30	40
010-200-50155	200 x 2"	30	40

## DOUBLE OUTLET CLAMP SADDLE

Box Type B-2

Sack Type S-1



Product Code	Diameter	Packing Quantity	
	d x G x G	Box	Sack
010-025-55005	25 x 1/2" x 1/2"	400	600
010-032-55011	32 x 1/2" x 1/2"	350	500
010-032-55012	32 x 3/4" x 3/4"	350	500
010-040-55019	40 x 1/2" x 1/2"	250	400
010-040-55020	40 x 3/4" x 3/4"	250	400
010-050-55029	50 x 1/2" x 1/2"	180	200
010-050-55030	50 x 3/4" x 3/4"	180	200
010-050-55031	50 x 1" x 1"	180	200
010-063-55041	63 x 1/2" x 1/2"	150	200
010-063-55042	63 x 3/4" x 3/4"	150	200
010-063-55043	63 x 1" x 1"	150	200
010-063-55044	63 x 1 1/4" x 1 1/4"	150	200
010-063-55045	63 x 1 1/2" x 1 1/2"	150	200
010-075-55053	75 x 1/2" x 1/2"	100	150
010-075-55054	75 x 3/4" x 3/4"	100	150
010-075-55055	75 x 1" x 1"	100	150
010-075-55056	75 x 1 1/4" x 1 1/4"	100	150
010-075-55057	75 x 1 1/2" x 1 1/2"	100	150
010-075-55059	75 x 2" x 2"	100	150
010-090-55069	90 x 1/2" x 1/2"	75	100
010-090-55070	90 x 3/4" x 3/4"	75	100
010-090-55071	90 x 1" x 1"	75	100
010-090-55072	90 x 1 1/4" x 1 1/4"	75	100
010-090-55073	90 x 1 1/2" x 1 1/2"	75	100
010-090-55075	90 x 2" x 2"	75	100

Product Code	Diameter	Packing Quantity	
	d x G x G	Box	Sack
010-110-55085	110 x 1/2" x 1/2"	60	100
010-110-55086	110 x 3/4" x 3/4"	60	100
010-110-55087	110 x 1" x 1"	60	100
010-110-55088	110 x 1 1/4" x 1 1/4"	60	100
010-110-55089	110 x 1 1/2" x 1 1/2"	60	100
010-110-55091	110 x 2" x 2"	60	100
010-125-55102	125 x 3/4" x 3/4"	45	75
010-125-55103	125 x 1" x 1"	45	75
010-125-55104	125 x 1 1/4" x 1 1/4"	45	75
010-125-55105	125 x 1 1/2" x 1 1/2"	45	75
010-125-55107	125 x 2" x 2"	45	75
010-140-55118	140 x 3/4" x 3/4"	40	50
010-140-55119	140 x 1" x 1"	40	50
010-140-55120	140 x 1 1/4" x 1 1/4"	40	50
010-140-55121	140 x 1 1/2" x 1 1/2"	40	50
010-140-55123	140 x 2" x 2"	40	50
010-160-55134	160 x 3/4" x 3/4"	40	50
010-160-55135	160 x 1" x 1"	40	50
010-160-55136	160 x 1 1/4" x 1 1/4"	40	50
010-160-55137	160 x 1 1/2" x 1 1/2"	40	50
010-160-55139	160 x 2" x 2"	40	50
010-200-55150	200 x 3/4" x 3/4"	30	40
010-200-55151	200 x 1" x 1"	30	40
010-200-55152	200x 1 1/4" x 1 1/4"	30	40
010-200-55153	200x 1 1/2" x 1 1/2"	30	40
010-200-55155	200 x 2" x 2"	30	40





## PACKING DIMENSIONS

	Packing Type	Width	Length	Height
		cm	cm	cm
	B-1	33	45	38
	B-2	46	65	44
	B-3	35	75	25
	B-4	35	95,5	25
	B-5	35	122	25
	B-6	53	80	23
	B-7	55	100	23
	S-1	55	105	30
	S-2	25	70	22
	S-3	35	80	22
	S-4	50	80	22
	R-1	85	85	25
	R-2	90	90	25
	R-3	56	56	25

## PACKING DIMENSIONS

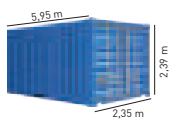
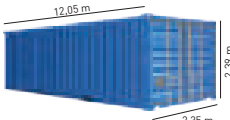
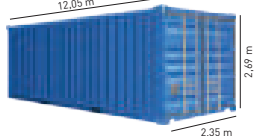
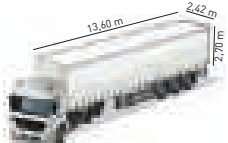
• FOR 20" DC CONTAINER LOADINGS

• FOR 40" HC CONTAINER LOADINGS

• FOR TRUCK LOADINGS



## LOADING QUANTITIES

				
Packing Type	20" DC	40" DC	40" HC	TRUCK
B-1	546	1092	1274	1470
B-2	225	450	540	642
B-3	432	918	1020	1170
B-4	342	720	800	980
B-5	264	561	622	770
B-6	290	600	660	825
B-7	220	480	528	594
S-1	210	420	470	520
S-2	750	1530	1836	2080
S-3	480	975	1170	1330
S-4	345	675	810	920
R-1	188	380	425	485
R-2	180	375	420	475
R-3	320	640	720	864
P-1	10	20	-	-
P-2	-	-	20	-
P-3	-	-	-	24

[illegible]

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**ERHAS 2 :**

KOS Bölgesi İhsan Dede Cad. 9. Sok. No:11 Selçuklu / Konya / TURKEY

**ERHAS 3 :**

KOS Bölgesi 509.Sokak No:9 Selçuklu / Konya / TURKEY



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