WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 3, Issue 1, Jan., 2022

DROPS OF DRIP IRRIGATION SYSTEM TECHNICAL CHARACTERISTICS

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ABSTRACT
The drips of the drip irrigation system serve to reduce the water pressure in the system pipes and remove the water from the hose in the form of drops. Droppers are a key element of a drip irrigation system and are selected depending on the type of crop being irrigated

Keywords: drip irrigation, drip, hose, plate, spiral channel, pipe, foam, filter, membrane.

INTRODUCTION

Modern drip irrigation systems use drip-type drips, which are installed in the form of a plate, which is inserted along the wall of the hose.
As a result of simplification of the design of the existing drip irrigation system, it is necessary to increase their reliability for the use of new technical solutions for pressure reduction spiral polyethylene droppers, stamped capillary tubes.
Drip irrigation systems vary by type of drip. They had a labyrinthine and spiral channel of pressure relief; has a foam consumption regulator; the network will have a membrane compensator that provides a constant pressure flow of 0.05 to 0.4 MPa
Drops with a membrane pressure compensator used in areas with high slopes are common. Foam drips are mainly used when using turbid water. A small-flow system has been developed that dissolves due to the constant pressure in special hanging vessels with holes that ensure uniformity of water supply along the length of the local micro-irrigation irrigation pipe.
Drainage holes have a diameter that can reduce the demand for water treatment. It also works stably in the location of irrigation pipes with a large slope.
In light soils, micron nozzles prepared for fine-dispersed irrigation with a radius of action of 1 ... 4 m are widely used.

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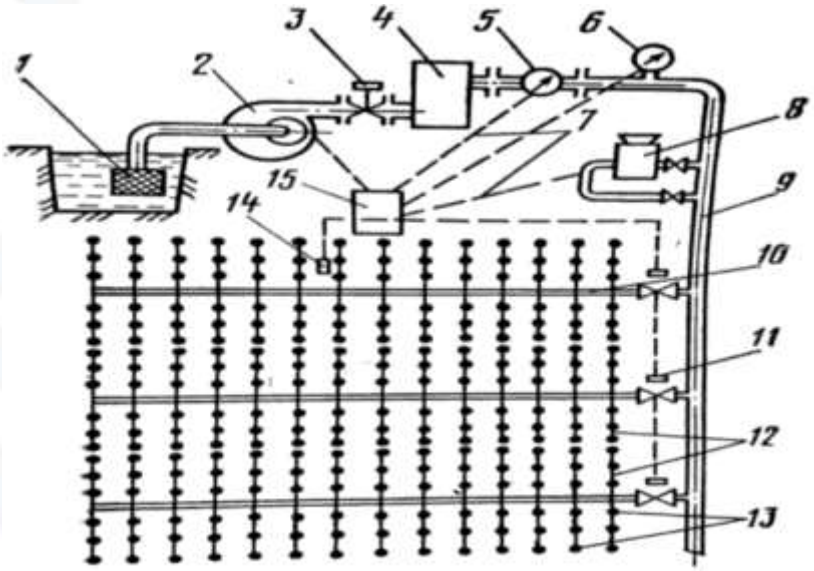
Technical characteristics of drips

Droppers of to be called	Pressure relief and flow stabilization are technical solutions	Leakage mode		Labor costs	Working pressure	Droppers materials	weight
		Worker	Washable				
"Moldova" - 1A	Throttle with spiral channel and membrane regulator	Drip	Streaming	4...8	0,1...0,4	Thermoplastic polymer, rubber	15
"Vodopolymer" - 3	Calibrated dosing with membrane regulator		Streaming	5	0,1...0,3	That's it	15
"Tavriya" - 1	Foam regulator throttle	Streaming		7...10	0,04...0,08	The lighting is stabilized	40
“Gornaya”	Radial channel diaphragm regulator	Drip	Streaming	1,5...2,5	0,1...1	Light Stabilized polyethylene	10
KU-1 (Ukrgiprovodkhoz)	Rezana diaphragm for flow control	Drip	Streaming	4	0,1...0,6	Thermoplastic polymer	25
K-383	Freely oriented membrane regulator	Drip	Streaming	5,5	0,1...0,6	That's it	10

To improve the completeness, drip irrigation systems are divided into 9 .... 12 modular areas, which consist of one to three hectares of simultaneously irrigated areas. Water supply to the site is controlled remotely using a valve installed at the head of the site pipeline.



Scheme of Drip Irrigation System:

1-water source; 2-pressure generating section; 3-main water trap; 4-filter; 5-water meter; 6-manometer; 7-communication channels; 8-feeder; 9-trunk pipe; 10-distribution pipe; 11-remote-controlled water valve; 12-irrigation pipes; 13-micro-water extractors (drips); 14-Irrigation sensor; 15-control unit

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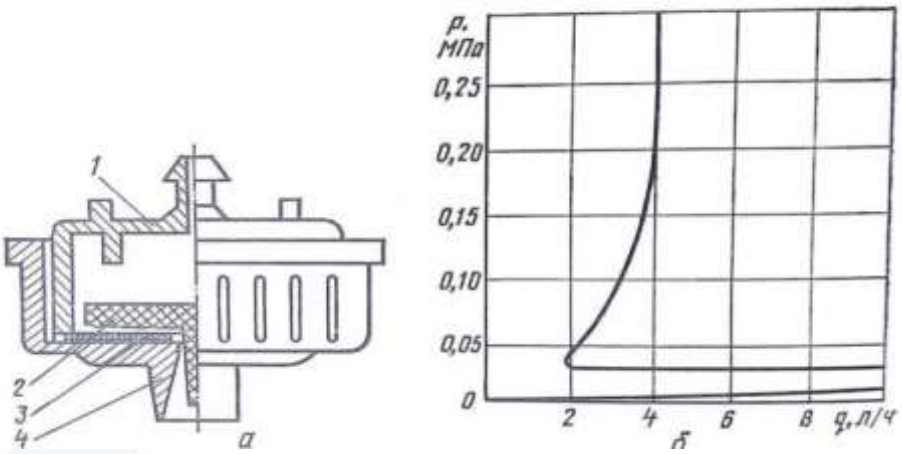
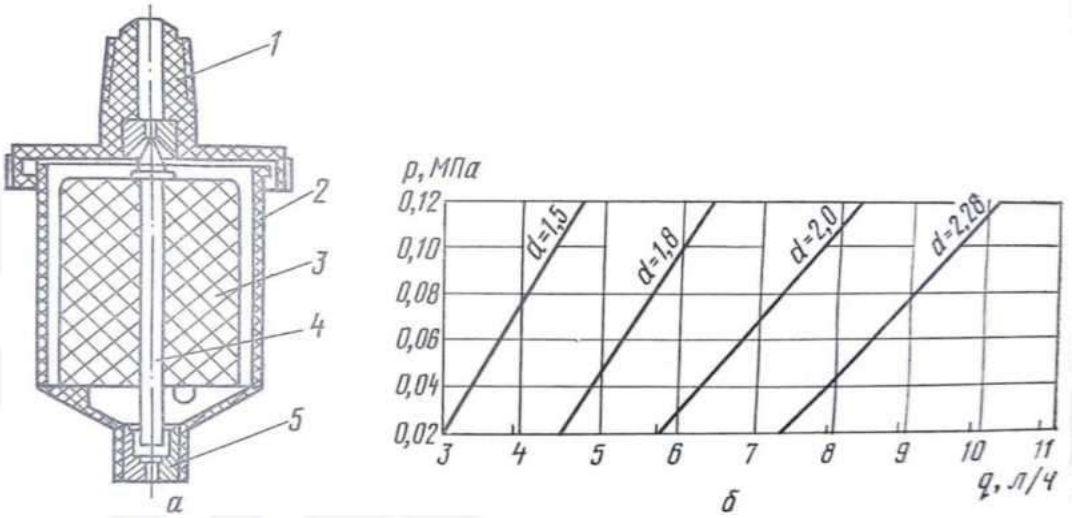
The water distribution scheme allows localization of individual affected sections of the system without interrupting the irrigation of other parts of it. To do this, use an electric wire sliding valve or electric hydraulic valves. A special cable is used to transmit control commands and connect the electric hydraulic valves to the supply. Automatic control of drip irrigation systems was carried out using a software device that provides a given sequence of irrigation of modular plots, depending on the agro-technical needs of the crop and soil moisture.



"Moldova" -1 (a) micro water pump,
Corps 1; 2-throttle; 3- washer-gasket; Cover 4. (b) micro water discharge and its flow-pressure characteristic



"Tavriya" -1 (a) micro water pump:
1-kopkok; 2-corpus; 3 foam; 4-igna; 5 outlet hole; d-outlet hole diameter, mm, (b) micro water outlet and its flow-pressure characteristic.

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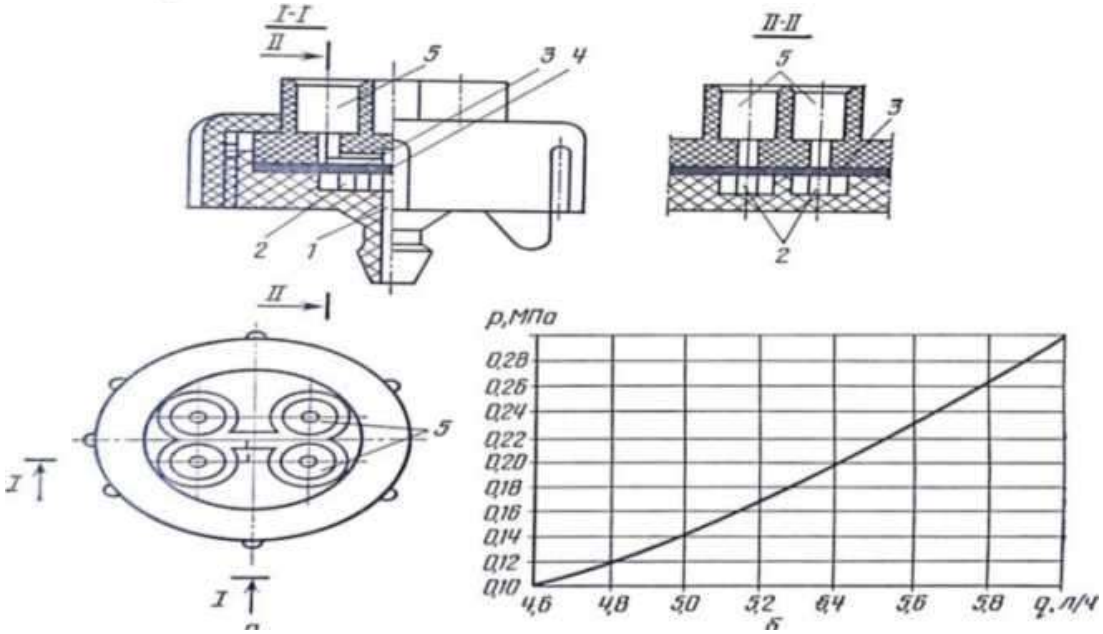
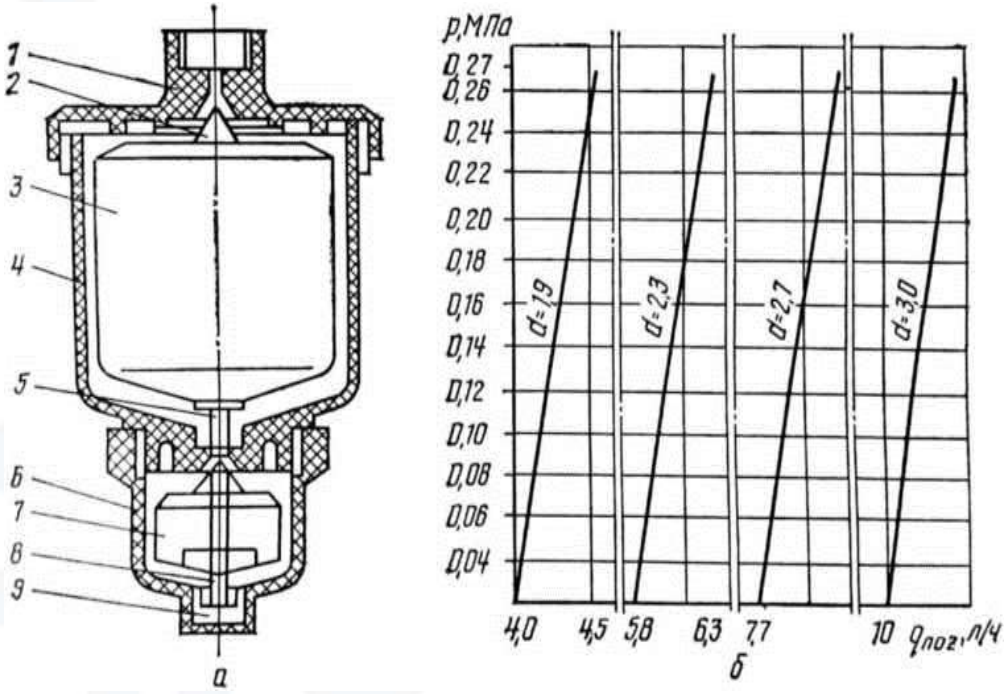


"Vodpolymer-3" micro water extractor (a):
1 connecting nozzle; pressure chambers; 3 dosing channels; 4-membrane-gasket; 5 water extractor. (b): micro water extractor and its flow-pressure characteristic



"Uzgiprovodkhoz" (Uzbek State Institute for the Design of Water Facilities Construction Education and Science) -2 (a):
1 top cover; 2, 5, 8-needle; 3 foam-pressure extinguisher; 4 upper camera body; 6 lower camera body; 7 foam consumption stabilizer; 9 nipples and outlet; d-nipple hole diameter, mm. (b) micro water discharge and its flow-pressure characteristic

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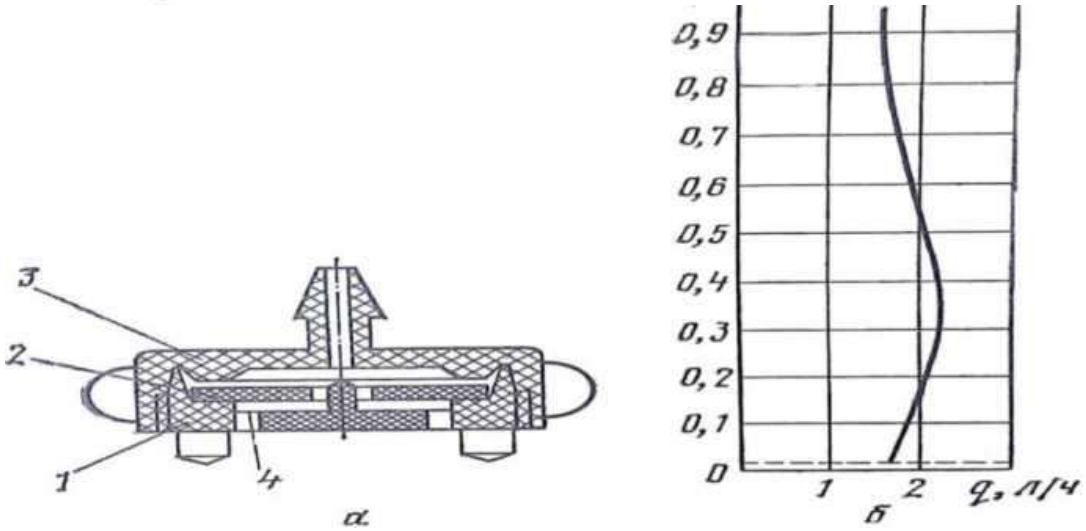

"Gornaya" micro-drip (a):
1-corpus; 2 - membrane; 3 - cover; 4 - radial burtik. b) micro-water-drip and its flow-pressure characteristic

In the case of drip irrigation of the garden, the order of irrigation of gardens is determined to ensure a shortage of water consumption during the growing season. The order of irrigation parameters is as follows:

- Irrigation and irrigation standards;
- Timing and duration of irrigation;
- Number of irrigations.

The norm of irrigation of the garden is determined on the recommendation of AN Kostyakov

$$M = Ev -(W_H + O+G)+W_k \quad (1)$$

where:

M - irrigation norms of agricultural crops, m^3 / ha;

E_v -Total water consumption of agricultural crops, m^3 / ha;

W_H - soil water reserve at the time of planting, m / ha;

O - the amount of precipitation during the growing season, m^3 / ha;

± G - amount of groundwater entering the account layer, m / ha;

W_k is the water in the soil during the harvest of agricultural crops reserve, m / ha.

Irrigation water is determined according to the following formula

$$M_o = EX_o$$

where:

M_o is the norm of drip irrigation, m / ha.
In drip irrigation, this norm is much lower than in surface irrigation. Taking into account these coefficients, the total water consumption (mm) is determined by the following relationship:

$$ET=k_b k_o ET_o$$

where:

k_b is the biological coefficient characterizing the location of the plants;
k_o - microclimate coefficient;
ET_o - evaporation (potential evatotranspiration), mm
Today in the Republic there are the following local enterprises that produce and view the components of the drip irrigation system: "Saving Irrigation Technologies" ITCM, Shortangazkimyo LLC, "Pipe technologies" LLC, "Ext Plast" LLC, "EcoDrip Lux" LLC, mAgro-Dripm LLC, Santexplast LLC, Agroplastmontajservis, PK Debut and others.
An analysis of the results of the above scientific research shows that the number of studies conducted using the drip irrigation method is insufficient, the main research has been conducted in recent years on brown soils. Much of the research has proven to be effective in using a differentiated method of drip irrigation in various vegetable, melon, corn, and cotton crops. Research in almond orchards in our region has shown that insufficient research has been conducted, and analysis of the current development of drip irrigation systems shows that the difference in water intake heights is large and, consequently, the water pressure is uneven along the length of the pipes. Research is needed today to ensure that the curved relief of irrigated areas and to ensure uniform pressure along the lengths of irrigated areas.

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