

# EJECTOR PUMP DREDGER ZNS 630-90

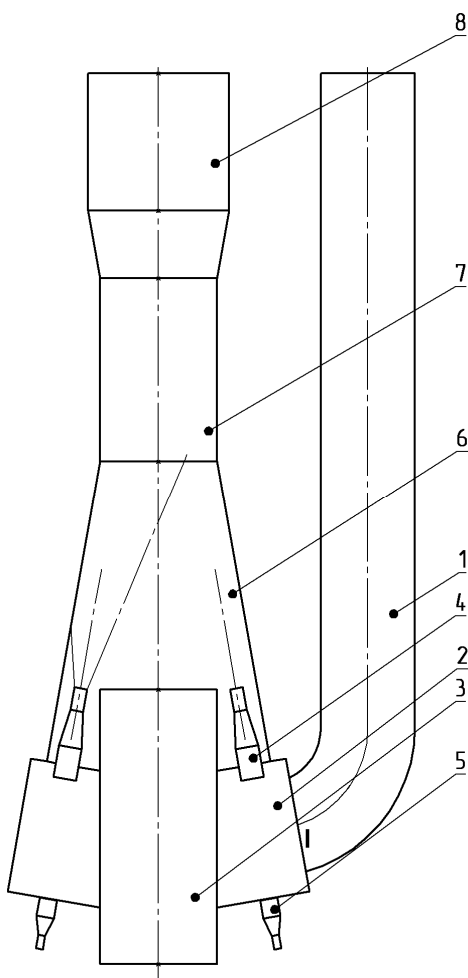
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## ASSIGNMENT

Underwater mining and hydrotransportation of sand and gravel soils. The limiting size of pumped particles is limited by inner diameter of air feeder.

## THE ESSENCE OF TECHNOLOGY

The main element of system of extraction and hydrotransportation ejector pump dredger ZNS 630-90 is the suction head SGZ 630-90, diagram of which shown in figure 1.



Suction head consist of pressure tube 1, pressure cavity 2, air feeder 3, system of ejection 4 and wash off 5 injection head, mixing chamber 6, bottleneck 7, and dredging pipe 8.

SGZ 630-90 works as follows: water in pressure pipe 1 fed under pressure into the pressure chamber 2. From the pressure chamber, water expires on through the spray burner 4 into the mixing chamber 6 and through the wash out injection heads 5 expire in array of soil blurring and pervade him. Under the influence of high-pressure water jets, flowing through the ejection heads 4 into the mixing chamber 6 into the air feeder 3 formed a region of rarefaction, under the influence of which prepared in a face soil moves in the mixing chamber 6, where the streams are mixed. Through the bottleneck 7 pulp transported to the dredging pipe 8, after which - to place of storage or recycling.

Fig. 1. Scheme of suction head SGZ 630-90

## INDUSTRIAL USE

Ejector pump dredger ZNS 630-90 has passed experimental-industrial tests, which determined its operating characteristics:

- the type of soil - incoherent sand, gravel, grain size up to 180 mm;
- the depth of development - up to 8 m;
- distance transportation of sand and gravel pulp horizontally - up to 250 m;
- working pump - D 630-90;

- pump drive – diesel JM3 238 (250 kW);
- productivity on slurry - 1100 m<sup>3</sup> / h;
- performance by soil - 90 t / h.

The obtained results allowed to recommend ejector pump dredger ZNS 630-90 for production. Made two machines ZNS 630-90 in climatic versions "Europe" and "Africa". Currently ejector pump dredger ZNS 630-90 successfully exploited during development of river gravel in Ukraine and diamond deposits in the Republic of Liberia (Fig. 2).



Fig. 2. Ejector pump dredger ZNS 630-90

### **ADVANTAGES AND DISADVANTAGES**

In the experimental-industrial tests ejector pump dredger ZNS 630-90 revealed such advantages and disadvantages:

Advantages:

- the possibility of extraction and transporting clumpy particulate materials;
- constructive reliability jet pump due to the lack of rotating and moving parts;
- production simplicity and low cost of equipment;
- maintainability and ease of maintenance.

### Disadvantages

- the main disadvantage of ejector suction-tube dredger is low pressure that created by the jet pump.

### **CONTACT INFORMATION**

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