

# **A device for graded material separation INCLINED SCREEN GNK-1200**

**Authors:** prof. Bondarenko A.O. assoc. prof. Zapara E.S

## **ASSIGNMENT**

Classification of graded materials (sand and gravel natural and artificial) in the pulp stream with getting commercial product of specified size. Effective removal of grains from commercial product with size more than 5...10 mm.

## **THE ESSENCE OF TECHNOLOGY**

Minerals supplied by pressure pipe of pump dredge, classified according to size on a fixed inclined screen (Fig. 1). Oversize material (gravel and cutty clay) are transported through a chute to the dump, and the slurry is poured into map provides an additional opportunity for cleansing from fine silty, clay inclusions, dewatering and storage, waste water is drained into the foundation pit pump dredge.

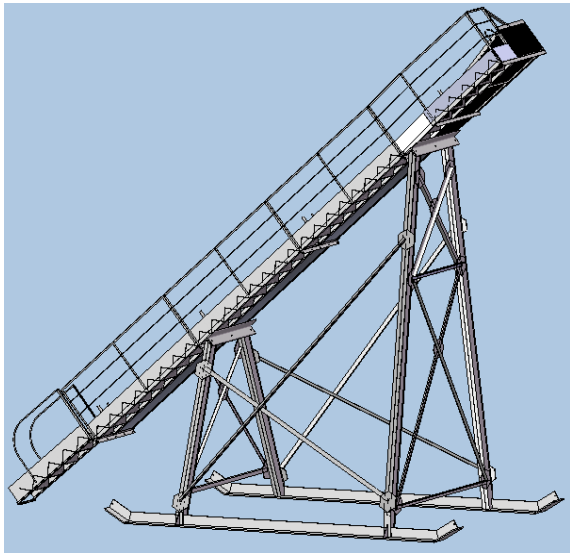


Fig. 1. Model of inclined screen

The design feature of inclined screen GNK-1200 is ease of assembly from a separate supply modules in the open area of processing.

## **INDUSTRIAL APPLICATION**

Inclined screen GNK-1200 applied at classification of building sand of Aleksandrovskiy deposit in complex with suction dredge (Fig. 2). Designing of inclined screen GNK-1200 and development of design documentation executed with



Fig. 2. Application of inclined screen GNK-1200

application of Solid Works software.

Practical use of inclined screen GNK-1200 provided: the decrease of the cost of combustive-lubricating materials by 7.2 thousand liters/year (50%); increase in the number of classes of finished product up to 2; the reduction of cost price of sand extraction on 2,15 UAH/m<sup>3</sup> (10,6%); increase in cost of sales of marketable sand by increasing of its quality on 13 UAH/m<sup>3</sup> (52%).

## **ADVANTAGES AND DISADVANTAGES**

As a result of industrial exploitation identified such advantages and disadvantages inclined screen GNK-1200:

### **Advantages:**

- possibility of operating of the screen under conditions of open areas of processing;
- high separation efficiency of the graded material;
- the possibility of exploitation in the complex of water recycling;
- high reliability of the equipment due to lack of drive, including rotating and rubbing parts;
- simplicity of operation and maintenance due to lack of lubrication nodes;
- low requirements for professional qualification of people.

### **Disadvantages:**

- application for dewatering and disposal of marketable products cards reclamation;
- the dependence of quality of commodity products from raw material quality.

## **CONTACT INFORMATION**

SHEI «National Mining University»

Dnipro, Ukraine.

Doctor of Technical Sciences, prof. Bondarenko A.O.

+38-050-362-84-38

E-mail: [bondarenkoa@nmu.org.ua](mailto:bondarenkoa@nmu.org.ua); <http://htmp.com.ua>