



## Mobile self-loading crusher



### **Technical description:**

The self-loading crusher is designed to crush concrete elements and construction debris resulting, for instance, from building demolition. The material is loaded into the feed hopper using a reversed bucket or sorting grab with 1m<sup>3</sup> capacity. Installed under the hopper is a vibrating feeder which sieves out most of the small-grained material and feeds the sieve residue into the crusher where it is crushed.

The self-loading crusher is designed as a crawler, thanks to which it can move about easily.

Currently two machines must be used to crush construction debris from the demolition of industrial buildings and various exhausted structures: a mobile loader or excavator and a mobile crusher.

These machines are expensive and few companies can afford to conduct such pro-ecological activities. Moreover, the processing of concrete debris is not very profitable, which lengthens the payback period for the machines. Each of the above-mentioned machines is equipped with a high-power internal-combustion engine which emits fumes into the atmosphere.

Both machines have the same components, such as the movement mechanism, hydraulic unit pressurizing the hydraulic oil used to propel various devices, steering system etc. But those components are not fully used in the machines.

The self-loading crusher has a significant advantage over other mobile crushers, because it combines a loading and crushing system in one machine, achieving maximal capacity, which significantly decreases fuel usage in comparison to two separate machines, i.e. a mobile crusher and loader.

The self-loading crusher has another advantage – reduced costs of transport, operation and maintenance, as well as 50% less risk of malfunction.

Thanks to its 180° rotation capability, the discharge conveyor makes it possible to control the shape of the crushed material heap.

### **The set includes:**

Mobile self-loading crawler-type crusher composed of the following machines:

- Type 900 x 600 jaw crusher
- Discharging belt conveyor Bt=800; L=4.75m
- Sieve residue belt conveyor Bt=800; L=3.32 m
- Vibratory discharging conveyor,
- Vibrating grizzly feeder,
- Crawler chassis,
- Hydraulic drives of the above-mentioned devices with a three-phase separator, hydraulic pump and a hydraulic tank with accessories,
- Internal-combustion engine.

### **Specification of the set:**

- |                      |                               |
|----------------------|-------------------------------|
| - crusher inlet size | - 900 x 600 mm,               |
| - maximal feed size  | - 550 mm,                     |
| - machine capacity   | - 100t/h,                     |
| - output grain size  | - 0 ÷ 80 mm,                  |
| - installed power    | - 130 kW                      |
| - machine's weight   | - 250 KN (25,000 kg/25 tons). |

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### **Design description:**

The main design is shown on figure 1. According to the figure, the integrated system for crushing concrete debris and minerals is composed of a mobile jaw crusher [1] and the loader's boom [2]. The loader's boom [2] is rotary assembled on the mobile frame [3]. Mounted on the excavator boom [2] are hydraulic cylinders [4] which control the booms and the bucket. Properly pressurized hydraulic oil is supplied to the cylinders [4] and [5] via hydraulic hoses [6] from the hydraulic pump [7] powered by the internal-combustion engine [8]. The internal-combustion engine [8] and the hydraulic pump [7] also serve as the drive [14] of the crusher [1] and the vibrating feeder [10] dosing material to be crushed into the crusher [1] and screening out earth which is transported to the side via the conveyor [11].

Material crushed in the crusher [1] is transported via the vibrating feeder [12] and the belt conveyor [13] onto a vehicle or heap.

The belt conveyor [13] is rotary assembled in relation to the crusher's frame [1] and the boom [2]. Thanks to the fact that the belt conveyor is rotary assembled [13], the machine provides great flexibility in terms of how the crushed material is stored. The hydraulic drive [14] of the crusher [1] enables the reverse operation of the moving jaw, which facilitates the removal of clogged material from the crushing chamber. Auxiliary tools, such as a hydraulic hammer or crushing jaws, can be mounted on the excavator boom in the place of the bucket. The crusher can be controlled directly using hydraulic separators [9] or using the radio remote functionality of the panel carried by the operator.

The components constituting the self-loading crusher are shown below on Figure 1.

### **Description of operation:**

Crushing and loading operations are combined in this machine. This set is capable of crushing while in movement. The debris to be crushed is loaded into the feed hopper above the vibrating feeder [10] using the loader reversed boom [2]. The loader boom's [2] range of operation is 180° in front of the crusher and ca. 6 m. When moving forward, the crusher can handle a 13 m width belt. On the vibrating feeder [10] sand fraction below 50 mm is screened out and transported to the side via the conveyor [11]. The remaining debris is transported into the crusher [1] where, after being crushed, it falls onto the vibrating feeder [12] and then to the belt conveyor [13]. The belt conveyor [13] is rotary assembled, thanks to which the crushed material can be piled on the left, right or rear side of the crusher. Indicator labels on the control panel are shown on the attached figure, while a separate figure shows the hydraulic drives which are controlled from the panel.

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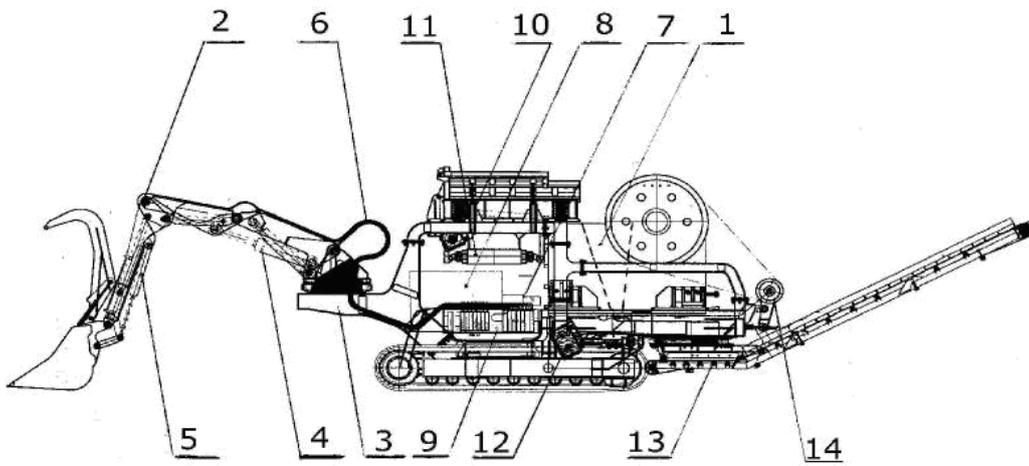


Figure 1



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