

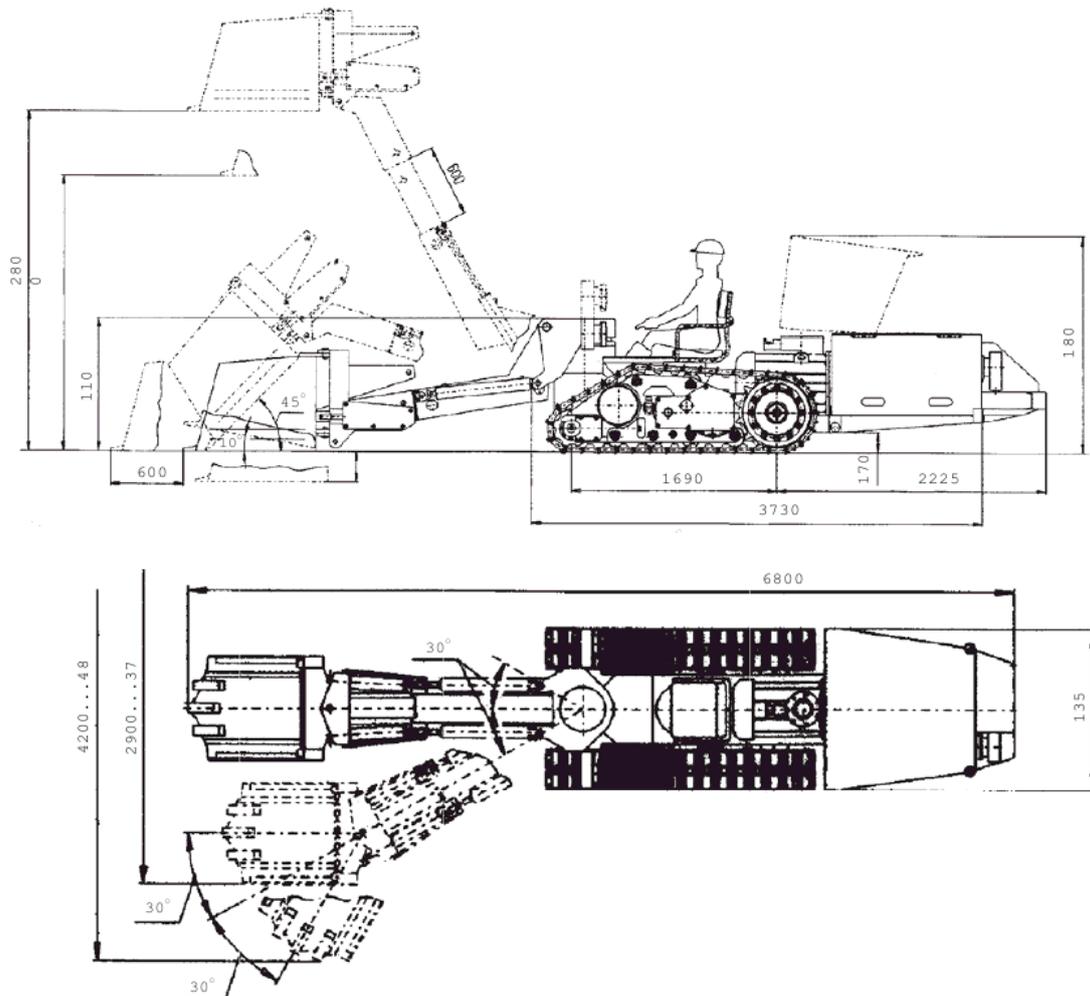
Technical characteristics

Sinking equipment Machines for coal extraction and conveying

RIPPER-LOADER WITH BUCKET OPERATING MEMBER MIIIk

The machine is designed to mechanize the process of ripping and loading of the rock mass with maximum ultimate uniaxial compression strength $\sigma_{\text{conpr}}=40$ MPa ($f=3-4$ units) in horizontal and inclined ($\pm 12^\circ$) mine workings, which are dangerous by gas and dust. Climatic version of the machine Y, category of location 5 in accordance with GOST15150.

The operating mains voltage is 660V, the rated current frequency is 50 Hz.



The unit was manufactured according to the design documentation of the "Dongiprouglesh" institute, the leading research and production enterprise of the industry, using advanced engineering solutions and advanced NKMZ technologies.

The requirements of customers and the experience of the equipment in operation are considered for the machine design engineering.

The MIIIk bucket ripper-loader is a version of the MIII ripper-loader and is developed on the basis of one transport and energy module. The use of bucket ripper-loaders allows the labour productivity increasing by 3,0-3,5 times, to exclude manual loading of the rock and the soil cleaning-up. It is worth pointing out the compactness of the machines, high maneuverability, simplicity of operation and reliability in operation. The use of the original telescopic boom allows to expand the excavation zone and increase the bucket filling capacity, as well as to use the machine in order to perform the other operations. The design provides slinging elements for lifting and moving of individual loads, as well as for rigging.

TECHNICAL DESCRIPTION

1. The machine complies with the regulatory documents: "Safety standards for down-hole machines, complexes and units", 1990, DNAOP 1.1.30-1.01-96 "Safety rules in coal mines."
2. The machine consists of the following main assembly units: the frame of the machine, bucket operating member, crawler undercarriage, chain-and-flight conveyor, electrical equipment, hydraulic system, irrigation system.
3. The design of the machine provides: safe access for inspection, repair and replacement of the main components of the machine, motor, electrical components; lightning of the face extraction zone and the place of transshipment of rock mass in mine transport devices; disassembly for transportable assembly units in mine conditions.
4. The design of the crawler undercarriage ensures the movement of the machine along the working and performance of the necessary maneuvers.
5. The design of the bucket operating member ensures the extraction and loading of the rock mass on the mine transport devices.
6. Electrical equipment: provides the following functions; remote control of the magnetic starter applying voltage to the machine; giving the advance warning signal; switch on the electric drives in any sequence; protection of electric drives against prohibitive overload and overheating; monitoring the hydraulic system oil condition; pressure control of the irrigation system; self-loading of the oil by the oil station; ability of methane relay connection; check of the circuit functioning correctness without the electric drives switching on; verification of protection correctness. The following parameters are indicated: power supply; operating member current level; condition of electric motor temperature sensors; condition of the oil level, temperature and dirt sensors; condition of the pressure sensor of the irrigation system; condition of contactors; condition of alarm and control lines. The machine is equipped with electrical equipment for the rated voltage of 660V, frequency 50Hz.
The machine is powered by the remote-controlled magnetic starter. Short circuit current protection is provided by the automatic circuit breaker.
The design of electrical components corresponds to the explosion protection level (according to GOST 12.2.020), the level of intrinsic safety of electrical circuits (according to GOST 22782.5) and the protection degree (according to GOST 14254). All elements of electrical equipment have plates of explosion protection, and the controls have inscriptions of the functional purpose and position.
7. The machine hydraulic equipment consists of the oil station, control monitoring equipment and protection elements and ensures the operation of hydraulic cylinders and hydraulic motors of the undercarriage.
8. The irrigation system provides dust suppression in the operation area of the operating member and in the place of unloading, and is controlled by flow and pressure.
9. The outer surfaces of the machine components are coated with varnish and paint to protect against corrosion.
10. The design and layout of the machine provides the ability to carry out all the necessary assembling and disassembling works using mine lifting devices.
11. A set of spare parts ensures the operation of the machine during the warranty period.

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Parameter name	Value
Technical performance in rocks with $\sigma_{\text{conpr}}=40$ MPa, m ³ /min	0,17
Total power of electric motors, kW	55
Rated values of supply mains: - voltage, V - current frequency, Hz	660 50
Boom span, m - over the width - over the height	4,8 2,6
Overall dimensions in transport position, mm - width - height	1350 1100
Weight, t	12,0
Travel speed, not more than, m/min	15
Bucket capacity, not less than, m ³	0,35
Rated operating pressure in a hydraulic system, MPa	14
Machine reliability indicators 80% resource before overhaul, m ³ in rocks with $\sigma_{\text{conpr}}=40$ MPa	9000