

Technical characteristics

Sinking equipment. Roadheader II110-01M

Roadheader application

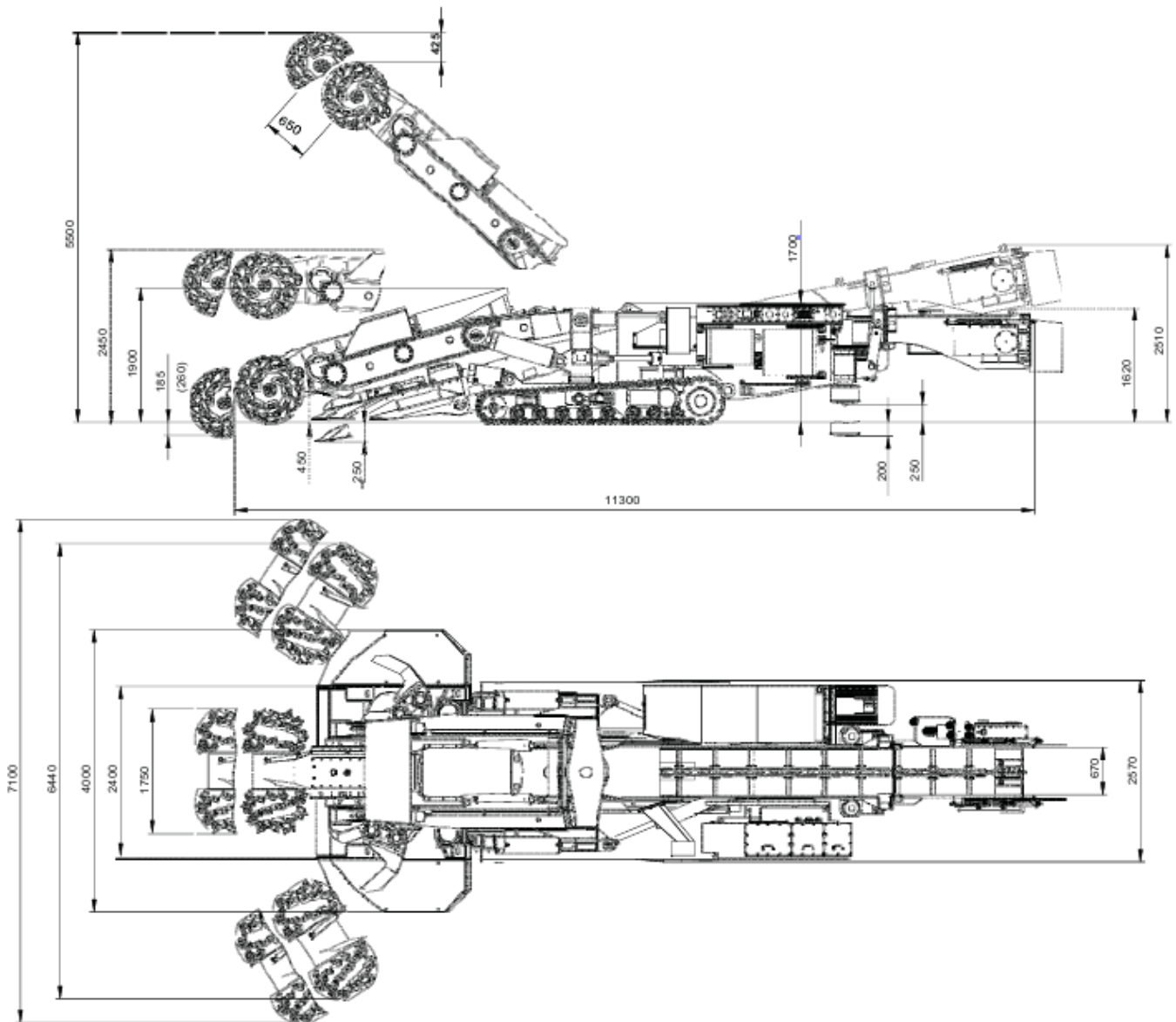
Roadheader II110-01M is designed for mechanized breakage and loading of mined rock when developing of horizontal and inclined $\pm 12^\circ$ workings with cross sections from 10 m² to 35 m² while roadheading in coal, rocks and combined face with maximum ultimate uniaxial compression strength $\sigma_{\text{compr}}=120$ MPa ($f=8$) and abrasivity up to 18 mg in mines, hazardous by gas (methane) and coal dust.

- Full conformity of hydraulic- and electrical equipment with the European standard.
- Improved reliability of control system.
- Advanced state diagnostics of roadheader units.

Distinctive features

1. The roadheader is 100% equipped with hydraulic and electrical equipment certified for compliance with European standards (ATEX directive).
2. The design of the operating member frame allows the installation of the reducer into it with the axial cutting head.
3. The two-speed motor of the operating member allows to change quickly the cutting heads rotational speed from the control panel, which increases the cutting efficiency when processing the combined face or the pure-rock face with a strongly varying strength. Reduction of cutting speed during hard and abrasive rocks breakage allows to reduce cutters expenditure, energy consumption and dust emission.
4. Irrigation systems: external on the frame of the operating member and internal with water supply to the cutters mark provide effective dust suppression and spark extinguishing. The water purification system includes three parallel-mounted filters with the ability to individually flush each by water backflow.
5. The roadheader speed during driving is increased up to 10 m/min. It is possible to regulate both the working and travelling speeds.
6. The roadheader can be controlled from the local control panel and remotely - from the portable cable control panel through the cable jumper or from the radio panel (up to 20 hours without accumulator recharging).
7. The instrumentation provides diagnostics of the roadheader electrical equipment with the output of information on the control panel liquid-crystal display.
8. The modernized system of electrical equipment allows powering the belt reloader, the irrigation pumping unit, the dust-collector from the roadheader.
9. The roadheader can be connected to the electrical mains of both 660 V and 1140 V.
10. The use of a gearless oil-pumping station with the two-section adjustable pump increases reliability, reduces operating costs.
11. The modernized system of hydraulic equipment provides:
 - proportional hydraulic control;
 - minimization of power losses at idle speed;
 - control of the operating member feeding speed;
 - control of the undercarriage travel speed;
 - additional connection of external equipment: hinged roof-bolter, face support jack system, two manual rock-drilling machines, hydraulically operated tools.
12. The roadheader can be made with the straight or lifting-turning chain-and-flight conveyor for various technological schemes for destroyed rock mass transportation from the face.
13. The bottoms of the conveyor troughs are made of thermally hardened steel and have increased wear resistance.
14. The roadheader can be equipped with the reloader with conveyor belt - 800 mm at widths, from 9 to 45 m in length, which is gimbal-mounted by the one end on the roadheader and by the other on the truck moving along the guides of the mine conveyor end section or to monorail trucks.

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New operating member; new cutting heads; new two-speed gearbox motor of the operating member; new hydraulic system Load-Sensing; new control station, control panels and electrical equipment made by Polish company PKiMSA "Carboautomatyka" S.A.; new irrigation system; increased travelling speed of the roadheader and operating member.

Parameter name	Value
Roadheader	
Cutting technical performance, m ³ /min	0,3...3,0
Operating member electrical motors power, kW	110/220
Installed electrical motors total power, kW	325
Rated values of supply mains: - voltage, V - current frequency, Hz	1140/660 50
Boom span, not less, mm: - over the width - over the height	7100 5500
Overall dimensions in transport position, not more: length, mm: - with conveyor turning section - without conveyor turning section width, mm height, mm - over the operating member	13300 11300 2570 1900
Minimum height of the working made by the roadheader, mm	2500
Weight, t	50
Operating member	
Type - boom-shaped telescopic with two axial cutting heads	
Type of the cutters - RG501D-16S, PT-3212, PIII32-85/16, PKC-2	
Maximum cutting heads diameter over the cutters, mm	950; 1100
Cutting head penetration beneath the crawlers supporting surface, mm	185; 245
Operating member extension, mm	650
Feeder	
Type - non-rotating, supporting with gathering arms (spinners)	
Width, mm - without reamers - with reamers 4000	2400 4000
Feeder penetration beneath the crawlers supporting surface, mm	250
Feeder hoisting above the level of the crawlers supporting surface, mm	450
Undercarriage	
Type - crawler track, self-propelled with individual hydraulic drive of left and right trucks	
Width of track chain, mm	650
Specific ground pressure, MPa	0,13
Clearance, mm	270
Travel speed, m/min.: - working - travelling	2...4 2...10
Conveyor	
Type - chain-and-flight, single-strand	
Channel width, mm	670
Flight chain travel speed, m/s	1,1
Hydraulic system	
Working fluid - oil ИГП-49	
Working pressure, MPa	21
Capacity of hydraulic system, l	800