



GEOMASH



Seismic exploration drilling rigs

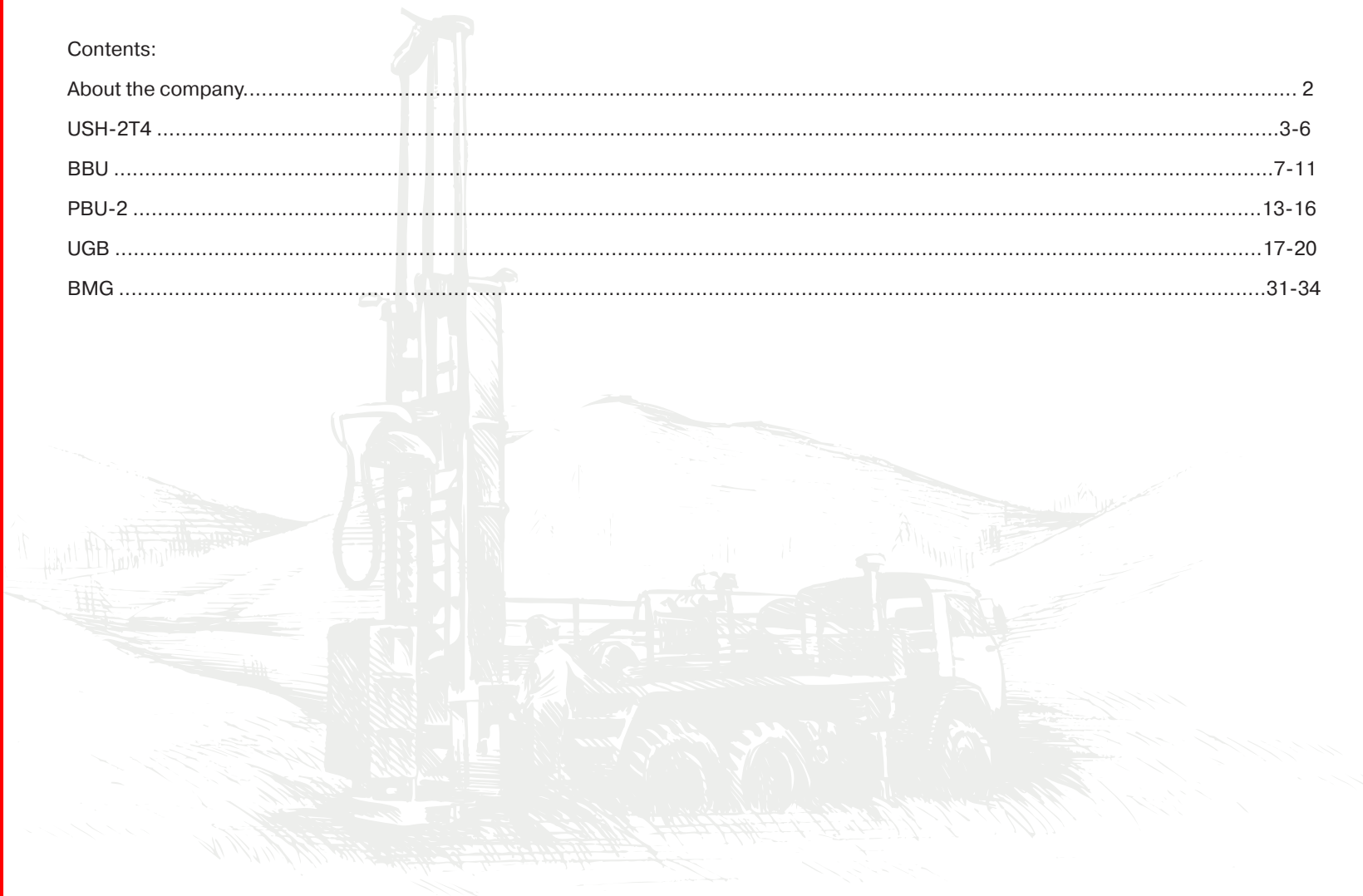
Effective drilling solutions



MASH

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LLC Geomash manufactures a wide number of universal drilling rigs for solution of tasks in the field of drilling of seismic exploration.

For more than 130-year of the company history a lot of things changed, invariable was only one — our aspiration to create drilling equipment capable to provide effective drilling for our partners.

The "Geomash" quality management system conforms to the ISO 9001:2008 standard concerning design and production of mobile drilling rigs, spare parts and boring tools.

Detailed knowledge of technological drilling processes and problems which our buyers face in the course of drilling give the chance to create the drilling rigs which are most adapted for the geological conditions and tasks solved by our buyers.

Today the company has more than 1000 employees, production sites are located in the cities of Shchigra, Vladimir (Russia) and Nordkhausen (Germany).

In 2011 "Lutz-Kurth" - the German producer specializing on production of small-sized boring equipment and boring carriages became a part of the Geomash company. "Lutz-Kurth" motto is to make machines small on dimensions and highly productive in work.

Companies of various activity profile successfully operate with "Geomash" products.

Largest geophysical organizations are constant partners of Geomash.

Among them are gas-and oil-extracting enterprises, such as JSC Gazprom, Lukoil, Transneft, Rosneft and others.

Our delivery geography isn't limited to the territory of the Russian Federation and includes countries of the Near and Far-abroad countries.



We seek to turn our knowledge and experience in the area of development and production of drilling rigs into competitive advantages of our partners.



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with mechanical drive of a mobile rotator

Drilling rigs of the USH series are a unique decision for creation of drilling-and-blasting wells when carrying out seismoprospecting works in most severe conditions.

Large mass, high rotary force, increased durability value predetermines performance of any objective.

Drilling rigs of the USH series possess an extensive additional complete set for realization of all main technologies of drilling. Drilling rigs of the USH series are in large quantities used by Geophysical organizations and proved as reliable, trouble-free, simple equipment in management.





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Technical characteristics

Feed stroke, m	3.25
Feed force, kgf:	
- up	12000
- down	6000
Spindle rotation frequency, rpm	40-240
Torque, max., kgm	750
Conditional drilling depth, m:	
- augers	60
- airflush	100
- DTH pneumoshock	50
Drilling diameter, max. mm:	
- augers	230/530*
- auger bores, mm	650
- with airflush	190.5

* depending on modification

The rig provides:

- auger drilling by a continuous face with a diameter up to 135 mm
- auger drilling by hollow screws with a diameter up to 170 mm
- shock-rotary drilling with a diameter up to 250 mm with the use of DTH hammers





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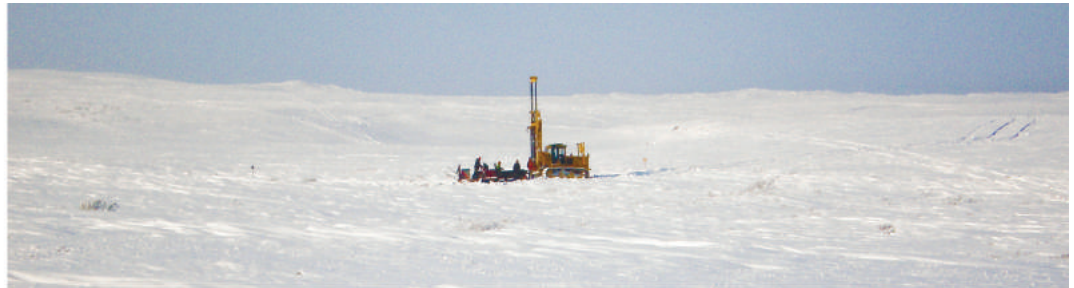
Technical features

Positive characteristics of USH-2T4.

- As base the tractor 10 of a traction class is used, allows to transport sledge with the tool, vein of beams, fuel reserve.
- High torque, allows to construct wells with a diameter up to 170 mm, up to 30 m in depth in 15 min.
- High up feed force, 12t. Allows to take the tool from a well without preliminary study of a column.

High weight promotes stability of the drilling rig during operation and movement.

Simplicity of design. Actual installation is concentrated near the driller, in the back part of the tractor with access to all knots and units that gives convenience in service and repair.





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Application experience

USH-2T4 successfully operated when drilling explosive geophysical wells on T10B2121 catarpillar chassis.

Works were carried out in the Yamalo-Nenets Autonomous Area. The geological section of the area of works is of the III category on drilling capacity: frozen peat, frozen sand, frozen clay, ice lenses, plastic clay with large inclusions of gravel and splinters of rocky breed, quicksand (sometimes pressure head), crude fluid sand.

USH-2T4 drilling rigs are used for drilling of explosive geophysical wells from 15 to 25 meters in depth. Average productivity in a month on the drilling rig makes 280–300 wells (5250–5625 running meters).

When drilling geophysical wells in steady breeds the following boring tools are used: augers with a diameter of 150 mm and chisels of two and three bladed with a diameter of 165 mm.

When drilling wells in quicksands and unstable breeds the following boring tools are used: hollow augers with a diameter of 168 mm and revealing chisels with a diameter of 175 mm and with a diameter of 180 mm.

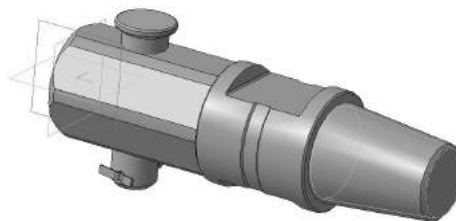
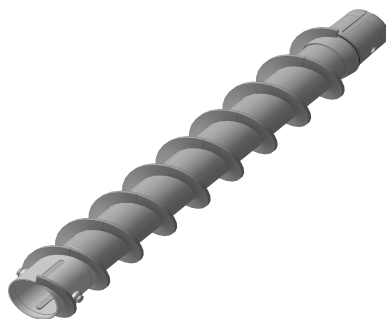




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Set of boring tools for USH2T4 series machines

Instrument set with hollow augers	
Name	Description
Auger	L=2500, d=168, S=100
Chisel	Expanding, external d=180mm, internal d=90mm, blades – 4.
Semi-lock	S55 shaft
Underlayer fork	For fixing of a auger columns
Extender (boring pipe d=89, L=500)	Extender, S60/55
PDSHK catch-lock	For rise and dismantle of an auger column
RSHK catch-lock	For a turn of an auger column
Tip 70	For immersion of explocives of dia 70mm
Pole	For immersion of explocives through a hollow auger column

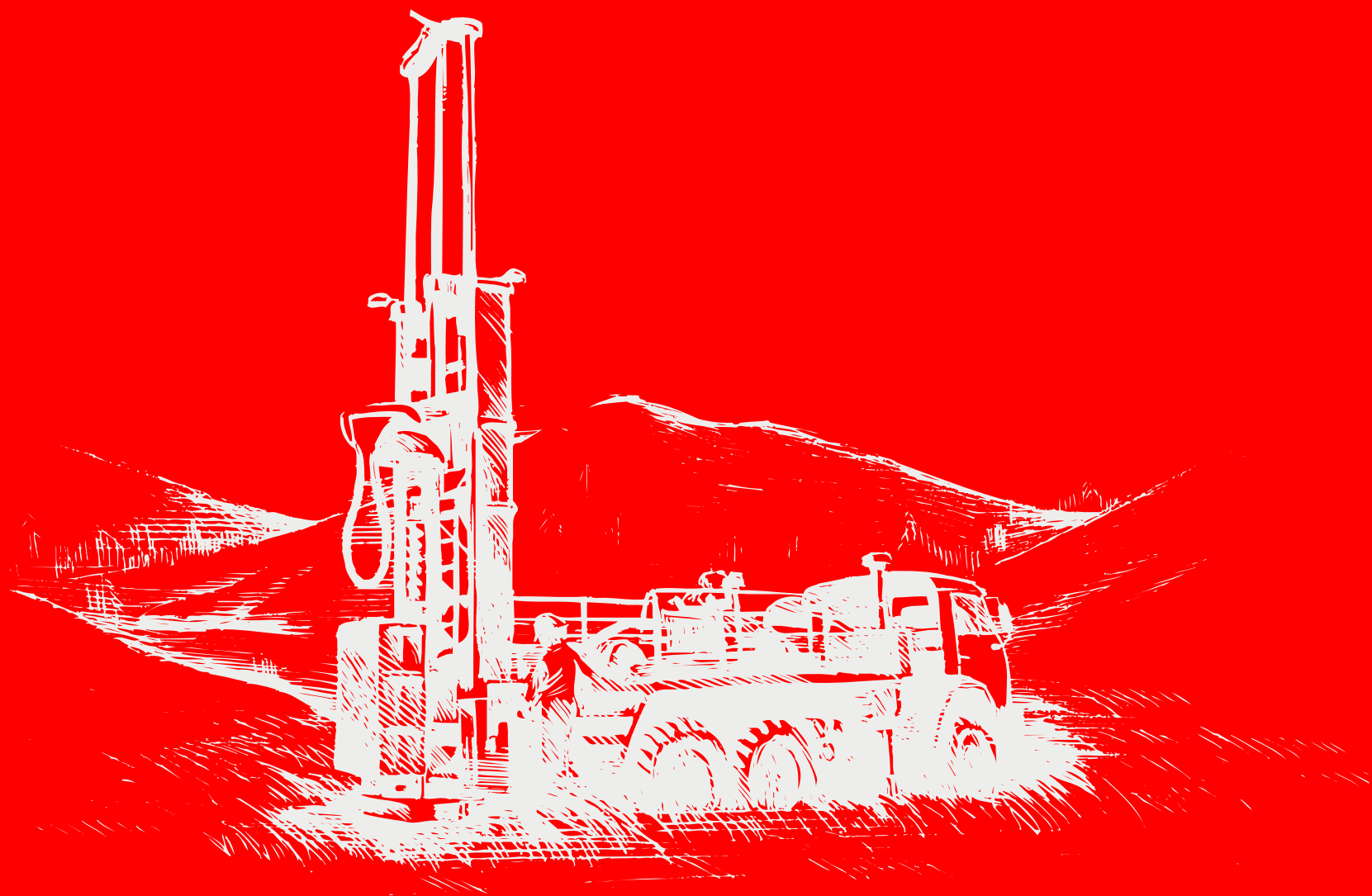




Set of boring tools for USH2T4 series machines

Instrument set with hollow augers	
Name	Description
Auger	L=2500, d=150, S=100
Auger	L=2300, d=150, S100
Auger	L=1500, d=150, S100
Auger	L=1000, d=150, S100
Chisel	Expanding, dia external 175, dia internal 80, blades – 4
Chisel	Expanding, dia external 165, dia internal 80, blades – 2
Semi-lock	S60/55 shaft
Underlayer fork	For fixing of a column of augers
Extender (boring pipe d89, L500)	Extender, S55
PDSHK catch-lock	For rise and dismantle of an auger column
RSHK catch-lock	For turn of an auger column
Tip 64	For immersion of explocives of dia 64mm
Pole	For immersion of explocives through a hollow auger column







Set of boring tools for USH2T4 series machines

Instrument set with solid face augers	
Name	Description
Auger	L=1670, dia 108, S=80 spiral step, pipe dia. 57mm, S41
Auger	L=870, dia 108, S=80 spiral step, pipe dia 57mm, S41
Chisel	six-blade bit with VK 8 plates dia 112
Underlayer fork	For fixing of auger column
Adapter	S55I41



Instrument set with hollow augers	
Name	Description
Auger	L=1500mm, d=108mm. S=100
Chisel	Revealing, external d=120mm, internal d=50mm Blades – 4
Chisel	Revealing, external d=120mm, internal d=50mm Blades – 2
Semi-lock	S55 shaft
Underlayer	For fixing of a column of augers
Boring pipe d=73, L=1000	Extender, S55
RSHK catch-lock	For turn of an auger column
Tip 38	For immersion of a charge of d=38mm
Pole	For immersion of a charge by means of augers through a hollow auger column



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Drilling rigs of the BBU series are the main decision for creation of drilling-and-blasting wells in hard-to-reach spots when carrying out seismoprospecting works on sites of difficult land relief. It is reached thanks to that installations possess relatively low weight from 650kg, have a collapsible design and possibility of drilling in constrained conditions.

Rigs of the BBU series possess an extensive additional equipment set for realization of all main objectives of drilling. Drilling rigs of the BBU series are issued since 2002 and proved as reliable, trouble-free, simple equipment in management.





Technical features

1. Block, dismountable design of the machine allows to bring it in hard-to-reach spots and assemble on on the job site.
 2. Its torque allows to carry out construction of wells by an auger method with a diameter up to 135 mm and depth to 25m.
 3. configuration of knots on a uniform frame, gives the chance:
 - a. to move from a well to a well, without dismantling.
 - b. to transport in a body of any vehicle, and to make drilling from a body, previously having fixed the drilling rig.
 4. hydraulic transmission allows to make stepless regulation of turn frequency of the boring tool with the set torque
 5. no manual transmission brings repairs to the replacement of hydraulic equipment, which reduces downtime rig for repair.
 6. High speed of rotator movement allows to reduce time of collecting/analysis of a boring column.
- Use of the caterpillar chassis of the increased passability increases mobility of the drilling rig and broadens the sphere of its application.
1. Increased working course, allows to use augers with a length of 1.5-1.8m. that allows to reduce well construction time.
 2. Existence of jacks adds operation stability.
 3. Transport base, can carry together with the installation a stock of drilling tools, assistive devices and members of the drilling crew.





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“Openok S” technical characteristics

Feed stroke, m	1.4
Longitudinal stroke of the stand, mm	900
Up and down feed force, max., kgf	1500/1500
Spindle rotation frequency, rpm	0-700
Feed speed, m/s	0.4
Length of the boring pipe (auger), mm:	
- at rotary drilling	1000
- at pneumoshock (DTH) drilling	750
Torque, max., kgf*m	150
Spindle drift diameter, mm	52
Rotator vertical angle tilt, deg:	
- in longitudinal plane	0-90
- in cross plane	0-30
Winch load capacity, kgf	400,1000
Engine capacity:	
petrol/diesel/electric, max., kW	17.6/17.7/15.0
Overall dimensions, mm:	
- transport position (height/width/length)	1550/800/2200
- operating position (height /width/length)	2050/1400/2300
Height with an additional mast and winch, mm	4890
Mass of the mast with the assembled winch, kg	77
Mass of the rig (without mast with the winch), kg:	
- with the petrol/diesel/electric motor	920/1000/950
Diameter of the well, max., mm	230
Conditional drilling depth, m:	
- augers, diameter 135/230 mm	20-25/10-12
- with washing, diameter 46 mm	to 100
- with airflush, diameter 112 mm	50
- with pneumatic impact tools (DTH), diameter 150 mm	50

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“Openok” technical characteristics

Feed stroke, m	1.4
Longitudinal stroke of the stand, mm	900*
Up and down feed force, max., kgf	1500/1500
Feed speed, m/s	0.4
Length of the boring pipe, mm:	
- at rotary drilling	1000
- at pneumoshock (DTH) drilling	750
Spindle rotation frequency, rpm	0-700
Torque, max., kgf*m	150
Spindle drift diameter, mm	52
Well vertical tilt angle, deg	0-45/ 90
Winch load capacity, kgf	400, 1000
Engine capacity:	
petrol/diesel/electric, max., kW	17.6/17.7/15.0
Overall dimensions, mm:	
- operating position (height /width/length)	2000/1550/1700-2590**
Height with the winch, mm	2800
Height with the mast and winch, mm	4100
Mass of the rig (without the mast and winch), kg:	
- with the petrol/diesel/electric motor	625-695**
Mass of the rig (with the mast and winch), kg:	
- with the petrol/diesel/electric motor	700-770**
Max block mass, kg	120
Diameter of the well, max., mm	230
Conditional drilling depth, m:	
- augers, diameter 230 mm	10-12
- augers, diameter 135 mm	20-25
- with washing, diameter 59 mm	to 100
- with airflush, diameter 112 mm	50
- with pneumatic impact tools (DTH), diameter 150 mm	50

* - except for the BBU 000 series 20 rigs

** - depending on engine type





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Application experience

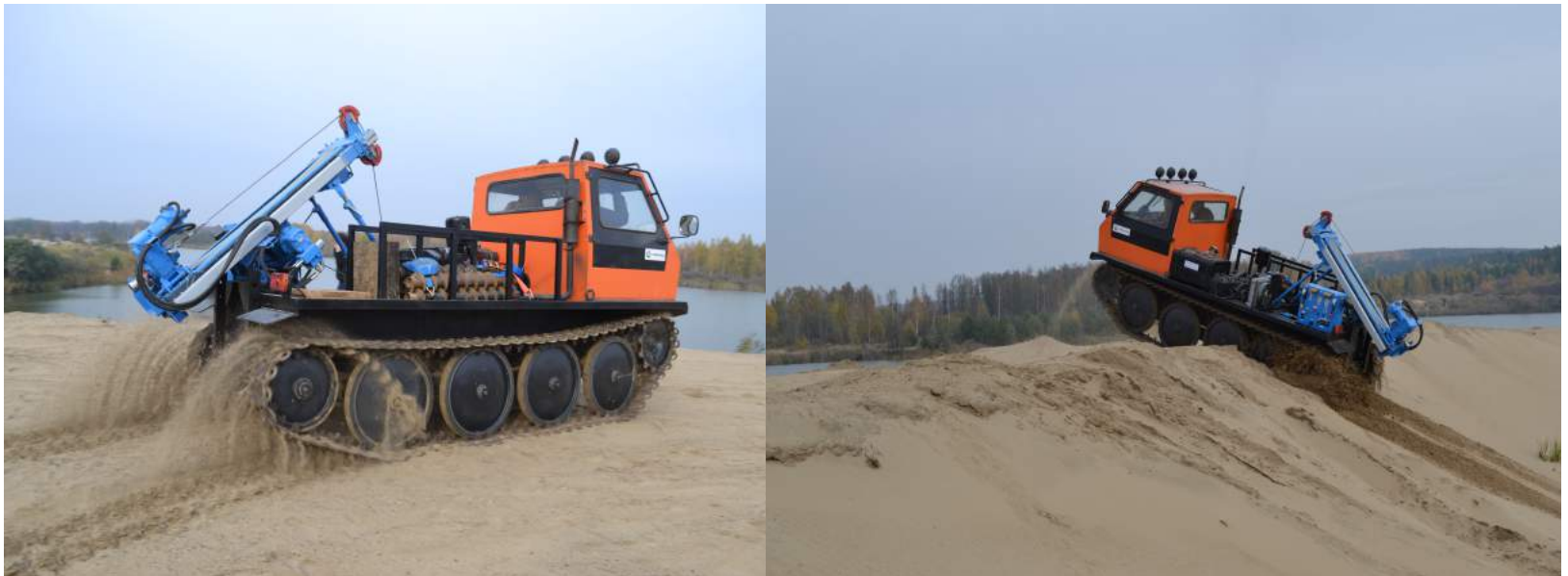
BBU-000 "Openok" carries out drilling of wells at seismic exploration.

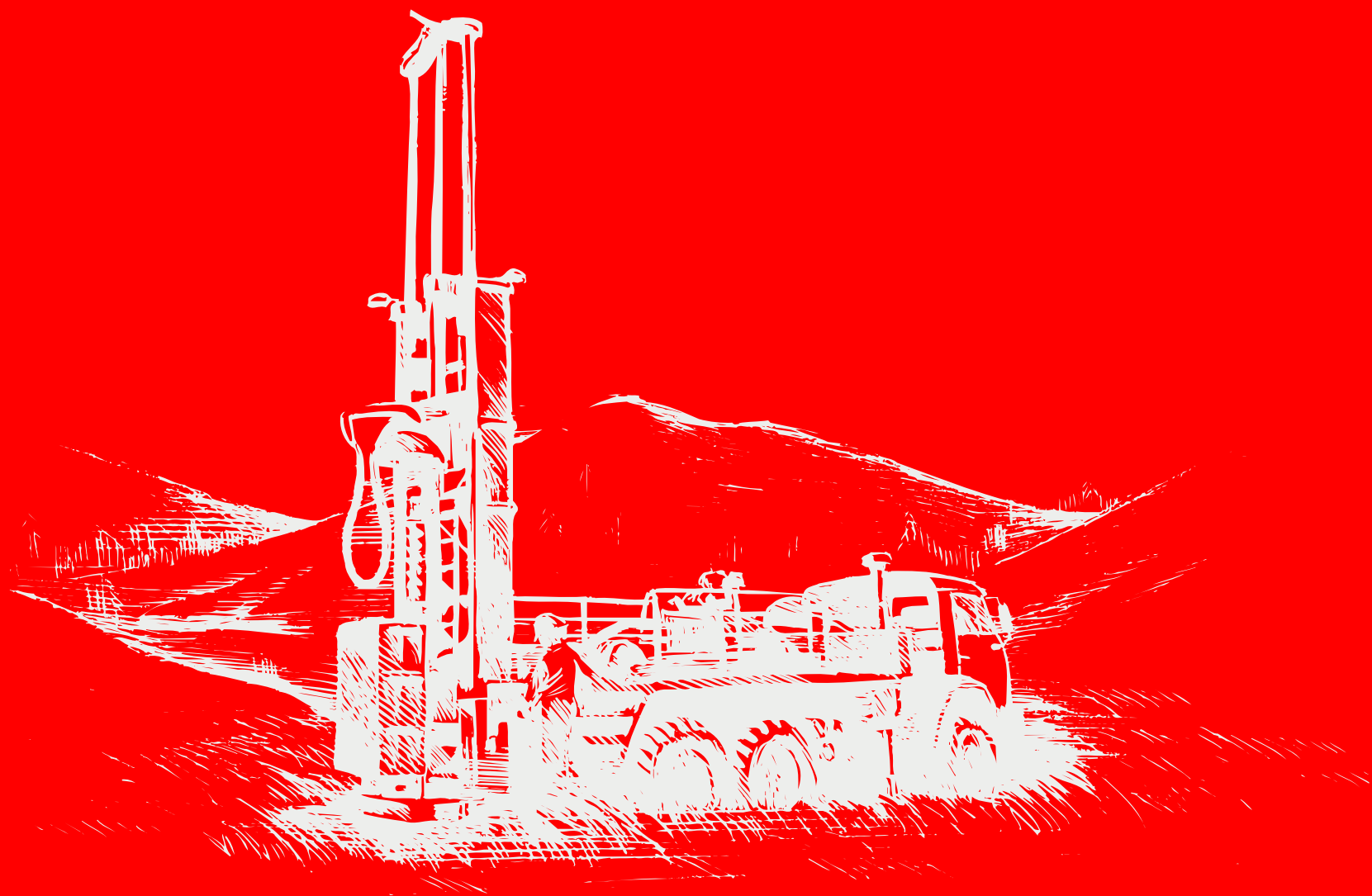
Openok BBU-000 drilling rigs perform drilling of wells at seismic exploration for the purpose of immersion in them pneumatic sources of initiation of elastic fluctuations.

Drilling of wells is carried out by augers with a diameter of 150-160 mm. Well depth was 5 - 10 meters. The area of seismoprospecting works is located in Krasnodar Krai. The geological section of the area is presented by clays, silt, shell rock, quicksands.

A number of advantages of BBU-000 drilling rigs, among which simplicity and ease in management, and also compactness are noted.

BBU-000 drilling rigs also provided drilling in unstable water-saturated soil, works were carried out by hollow 108mm augers. Well depth made 12-15 meters. Diameter of immersed explosives through colon of hollow augers was 40mm.







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Set of boring tools for BBU series machines

Instrument set with solid face augers	
Name	Description
Auger	L=1670, dia 108, S=80 spiral step, pipe dia. 57mm, S41
Auger	L=870, dia 108, S=80 spiral step, pipe dia 57mm, S41
Chisel	six-blade bit with VK 8 plates dia 112
Underlayer fork	For fixing of auger column
Adapter	S55I41

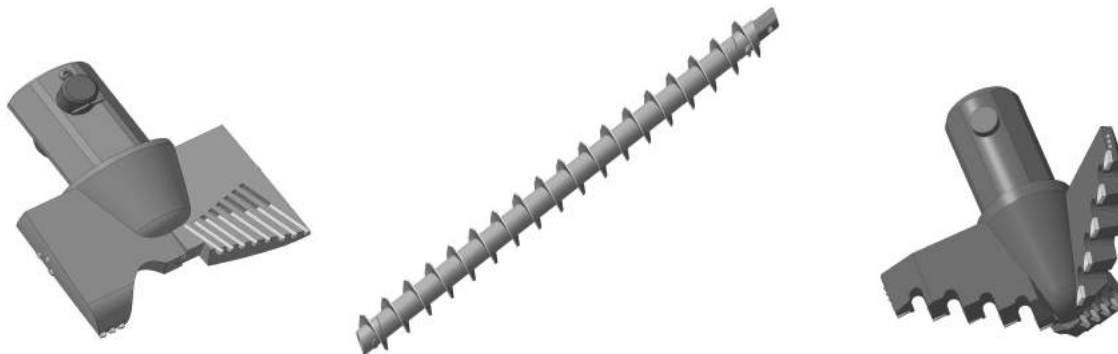


Instrument set with hollow augers	
Name	Description
Auger	L=1500mm, d=108mm. S=100
Chisel	Revealing, external d=120mm, internal d=50mm Blades – 4
Chisel	Revealing, external d=120mm, internal d=50mm Blades – 2
Semi-lock	S55 shaft
Underlayer	For fixing of a column of augers
Boring pipe d=73, L=1000	Extender, S55
RSHK catch-lock	For turn of an auger column
Tip 38	For immersion of a charge of d=38mm
Pole	For immersion of a charge by means of augers through a hollow auger column



Set of boring tools for BBU series machines

Instrument set with solid face augers	
Name	Description
Auger	L=2500mm, d=135mm, S=100 (spiral step)
Chisel	d=151mm, blades – 2, reinforced by six-sided blades, S55
Chisel	d=152mm, blades – 2, step, hard alloy BK8
Chisel	d=135mm, blades – 2, step, hard alloy BK8
Underlayer fork	For fixing of a column of augers
Extender (boring pipe d=89, L=500)	Extender
PDSHK catch-lock	For rise and dismantle of a auger column





MASH

with mechanical drive of a mobile rotator

Drilling rigs of the PBU series are the main and most mass installations applied at creation of drilling-and-blasting wells when carrying out seismoprospecting works at the moment.

Mechanical transmission, telescopic mast, elementary hydraulic scheme make the PBU the ideal rig for objective accomplishment. Drilling rigs of the PBU series possess an extensive additional complete set for realization of all main technologies of drilling. Drilling rigs of the PBU series are issued since 1991 and proved as reliable, trouble-free, simple equipment in management.



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Technical characteristics

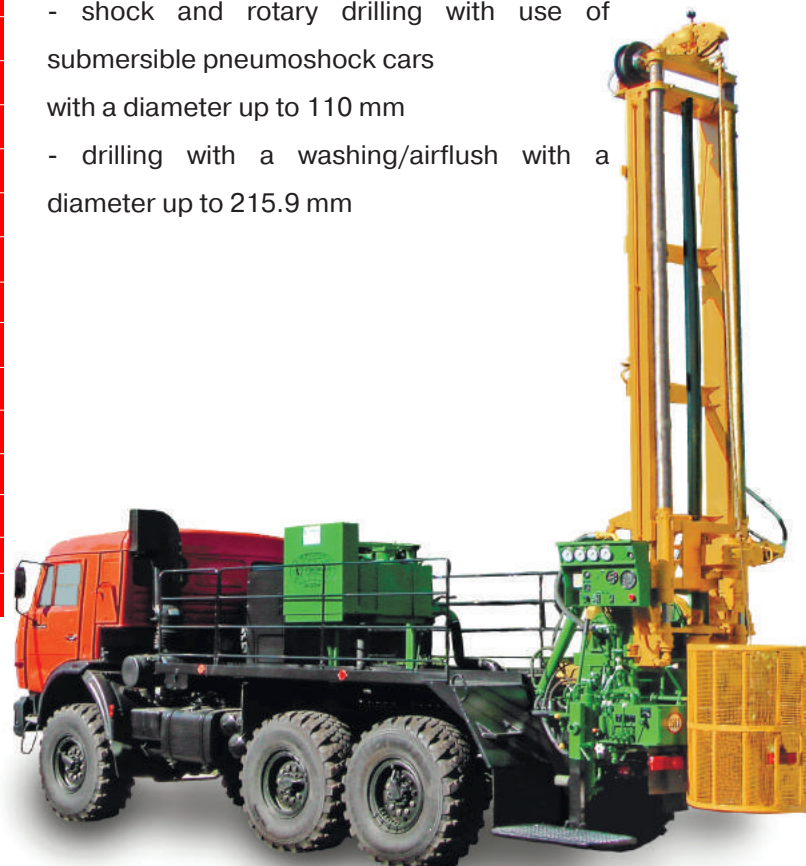
Feed stroke, m	1.8; 3.5*
Feed force, kgf:	
- up	3500 - 10000*
- down	3500 - 10000*
Spindle rotation frequency, rpm	25 - 430
Torque, kgf*m	500
Winch loading capacity, kgf	2600
Conditional drilling depth, m:	
- augers	60
- auger bores	25
- free-fall method	40
- with washing	100 - 120
- with airflush	100
Diameter of drilling, max., mm:	
- augers	400
- auger bores	850
- free-fall method	168
- with washing**	215.9
- with airflush**	290

* - depending on modification

** -depending on the applied pump, compressor equipment and boring pipes

The rig provides:

- auger drilling by a continuous face with a diameter up to 135 mm
- auger drilling by hollow screws with a diameter up to 108 mm
- shock and rotary drilling with use of submersible pneumoshock cars with a diameter up to 110 mm
- drilling with a washing/airflush with a diameter up to 215.9 mm





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Technical features

PBU-2 is used where it is impossible to use USH-2T4 because of its big weight. Installation on the sled basis is most often used, transported by the tractor.

Positive characteristics of sled PBU-2 version.

- As the tractor base it is possible to use any vehicle.
- High torque value, allows to construct wells with a diameter up to 135 mm, up to 30 m in depth in 15-20 min.
- Existence of the deck diesel reduces loading and increases motor potential of the tractor engine.
- simple mechanical and hydraulic schemes allow to diagnose and debug in minimum terms.
- installations of this kind are applied in seismic exploration for over 50 years.

In addition: Positive characteristics of PBU-2 version on self-propelled transport base of the increased passability (MTLB, MTLBU, TT-4).

Provides mobility, at small distances from a venue of works to base camp traveling nature of works is possible. increases the weight of the drilling rig that gives stability during the drilling and movement.





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Application experience

PBU-2 at seismoprospecting drilling.

PBU-2 drilling rigs on MTLBu chassis, and also the rig is mounted on the sled basis. Drilling rigs are used at drilling of geophysical wells up to 20 meters in depth. The object of drilling operations is in Western Siberia. Category of breeds on III drilling capacity. As the boring tool hollow augers with a diameter of 108 mm with a revealing chisel with a diameter of 120 mm are used.





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Set of boring tools for PBU series machines

Instrument set with solid face augers	
Name	Description
Auger	L=1670, dia 108, S=80 spiral step, pipe dia. 57mm, S41
Auger	L=870, dia 108, S=80 spiral step, pipe dia 57mm, S41
Chisel	six-blade bit with VK 8 plates dia 112
Underlayer fork	For fixing of auger column
Adapter	S55I41



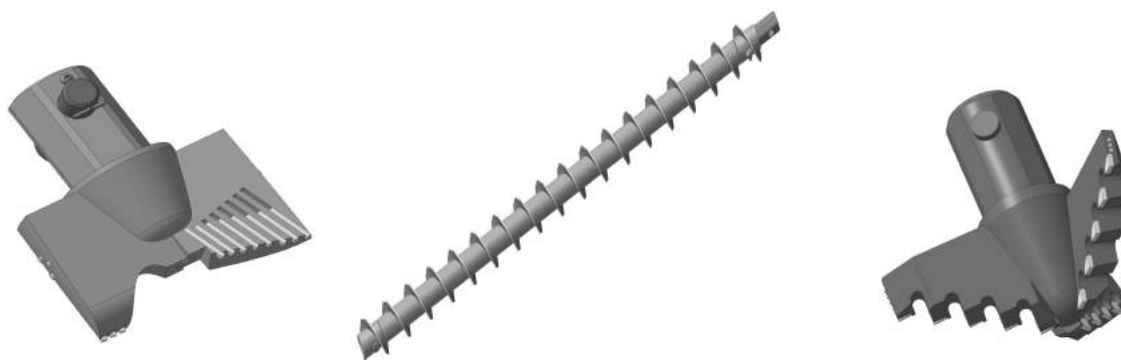
Instrument set with hollow augers	
Name	Description
Auger	L=1500mm, d=108mm. S=100
Chisel	Revealing, external d=120mm, internal d=50mm Blades – 4
Chisel	Revealing, external d=120mm, internal d=50mm Blades – 2
Semi-lock	S55 shaft
Underlayer	For fixing of a column of augers
Boring pipe d=73, L=1000	Extender, S55
RSHK catch-lock	For turn of an auger column
Tip 38	For immersion of a charge of d=38mm
Pole	For immersion of a charge by means of augers through a hollow auger column



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Set of boring tools for PBU series machines

Instrument set with solid face augers	
Name	Description
Auger	L=2500mm, d=135mm, S=100 (spiral step)
Chisel	d=151mm, blades – 2, reinforced by six-sided blades, S55
Chisel	d=152mm, blades – 2, step, hard alloy BK8
Chisel	d=135mm, blades – 2, step, hard alloy BK8
Underlayer fork	For fixing of a column of augers
Extender (boring pipe d=89, L=500)	Extender
PDSHK catch-lock	For rise and dismantle of a auger column





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with hydraulic drive of a mobile rotator

Drilling rigs of the UGB series are an attractive decision for drilling-and-blasting wells when carrying out seismoprospecting works.

Hydraulic transmission allows to regulate smoothly the frequency of rotation of the tool without loss of torque.

Drilling rigs of the UGB series possess an extensive additional complete set for realization of all main objectives of drilling. Drilling rigs of the UGB series proved as reliable, trouble-free, simple equipment in management.



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Technical characteristics

Feed stroke, m	2.2/ 3.4/ 5.2
Length of the drill pipe max., m	4.7
Feed force, kgf:	
- up	3000/6000/8000*
- down	1500/3000/8000*
Spindle rotation frequency, rpm	
I range	10-320
II range	10-710
Torque, max., kgf*m	350/ 650
Winch load capacity, kgf	1000/ 3000*
Well angle, to the horizon, deg	from 50 to 90
Conditional drilling depth, m:	
- augers, diameter 135 mm	40
- augers, diameter 350 mm	12
- with washing, diameter 93 mm	300**
- with airflush, diameter 151 mm	80**
- with pneumatic impact tools, diameter 250 mm	30**
- free fall, diameter 146 mm	35-40
- vibration «dry», 127 mm	30

* - depending on modification

** - depending on applied pumping and compressor equipment and boring pipes

The rig provides:

- auger drilling by a continuous face with a diameter up to 135 mm
 - auger drilling by hollow screws with a diameter up to 108 mm
 - shock and rotary drilling with use of submersible pneumoshock cars with a diameter up to 110 mm
 - drilling with washing with diameter to 151mm.
- *

* depending on pump productivity





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Technical features

The UGB drilling rig with hydraulic transmission, according to the characteristics can be applied on the same areas as PBU-2.

Positive characteristics of UGB.

1. Hydraulic transmission allows to make stepless regulation of turn frequency of the boring tool with the set torque.
2. Lack of manual transmissions brings repair to replacement of the hydroequipment.
3. High speed of the movement of a rotator allows to reduce time of collecting/analysis of a boring column.





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Application experience

Since 2011 in management of field seismoprospecting works UGB-001-30 drilling rigs of Geomash production are operated. UGB-001-30 are mounted on the chassis of the caterpillar GAZ-34039 all-terrain vehicle and are applied for drilling of wells from 10 to 18 meters in depth for detonation in the difficult, boggy terrain.

Technology of applied drilling operations: rotary noncore drilling with washing. The used boring tools: boring pipes $d=63.5$ of mm with lock connection 1700 mm long with a chisel with a bladed diameter of 112 mm.

The geological section is characterized by existence of zones of distribution of peat bogs and argillo-arenaceous soil.

The following advantages of UGB-001-30 are noted:

Productivity. For the 8th hour shift the UGB-001-30 drilling rig constructs 15 wells of 16-18 meters in depth.

Mobility and compactness.

High passability of the caterpillar chassis that is important during the works in the marshland.





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Set of boring tools for UGB series machines

Instrument set with solid face augers	
Name	Description
Auger	L=2500mm, d=135mm, S=100 (spiral step)
Chisel	d=151mm, blades – 2, reinforced by six-sided blades, S55
Chisel	d=152mm, blades – 2, step, hard alloy BK8
Chisel	d=135mm, blades – 2, step, hard alloy BK8
Underlayer fork	For fixing of a column of augers
Extender (boring pipe d=89, L=500)	Extender
PDSHK catch-lock	For rise and dismantle of a auger column





Set of boring tools for UGB series machines

Instrument set with solid face augers	
Name	Description
Auger	L=1670, dia 108, S=80 spiral step, pipe dia. 57mm, S41
Auger	L=870, dia 108, S=80 spiral step, pipe dia 57mm, S41
Chisel	six-blade bit with VK 8 plates dia 112
Underlayer fork	For fixing of auger column
Adapter	S55I41



Instrument set with hollow augers	
Name	Description
Auger	L=1500mm, d=108mm. S=100
Chisel	Revealing, external d=120mm, internal d=50mm Blades – 4
Chisel	Revealing, external d=120mm, internal d=50mm Blades – 2
Semi-lock	S55 shaft
Underlayer	For fixing of a column of augers
Boring pipe d=73, L=1000	Extender, S55
RSHK catch-lock	For turn of an auger column
Tip 38	For immersion of a charge of d=38mm
Pole	For immersion of a charge by means of augers through a hollow auger column



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BMG "Scarabey", Is designed to mechanize drilling-and-blasting works in conditions where application of all other machines is impossible due to lack of glades, boning boards, access roads.

The engine mounted on the two-wheeled manual cart with arms for laying of a boring reducer, a flexible shaft and stock of tools allow to perform by forces of two workers all range of works on transportation and drilling.





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Technical characteristics

Rotation frequency, from... to, rpm	230-360
Clutch coupling	Centrifugal
Clutch response frequency r / min	2100 - 2200
Transmission	Flexible shaft length not less than 2500 mm
Feed mechanism	Manual
Mass of the drilling rig, fully fueled, without tools, no more than, kg	80

The rig provides:

auger solid face drilling with a diameter up to 110 mm, to 8 meters in depth





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Technical features

The BMG is used where it is required to carry out seismoprospecting works with the categorical requirement of ecology preservation of the researched area.

Positive Features of the BMG.

- work and transportation is made by a crew of 2 people.
- lack of a hydraulic system simplifies design.
- simple mechanical scheme allows to diagnose and debug in the minimum terms.
- existence of own wheels and small weight ensures mobility, at small distances from a venue of works to base camp

Application experience

Drilling rigs are used when drilling geophysical wells up to 8 meters in depth. The object of drilling operations was in Western Siberia. Category of breeds on drilling capacity of III. As the boring tools augers with a threaded connection with a diameter of 62 mm with a chisel with a diameter of 70 mm were used.

In general only 15-20 minutes are spent for construction of one well, 20-25 wells are constructed per shift.



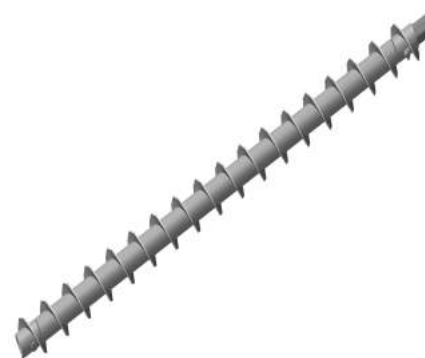


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Set of boring tools for BMG series machines

Instrument set with solid face augers

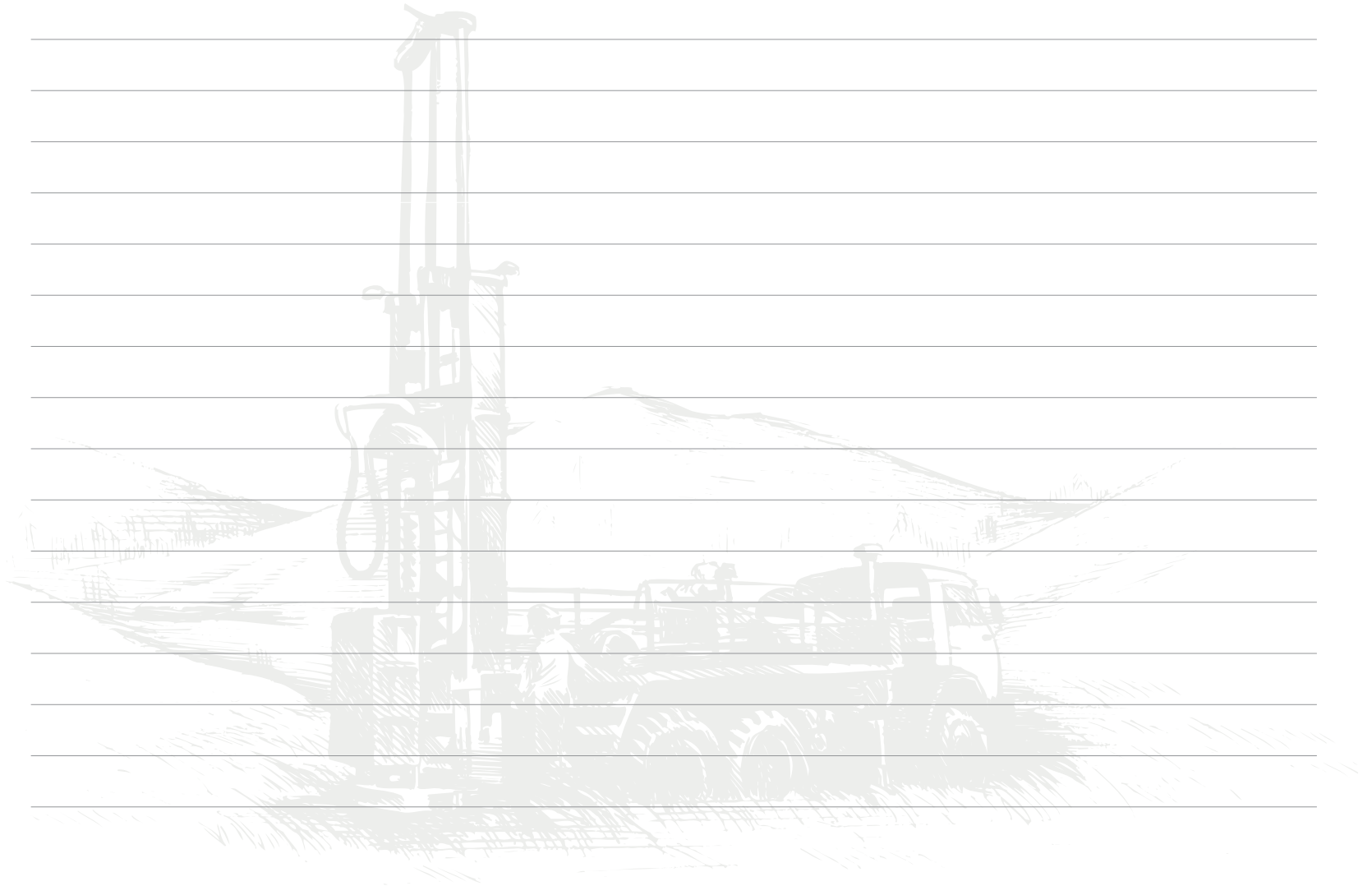
Name	Description
Auger	L=1000mm, d=60mm
Auger	L=1000mm, d=70mm
Auger	L=1000mm, d=90mm
Auger	L=1000mm, d=110mm
Chisel	d=75mm, 2 blades
Tip 48	For immersion of explosives of d=48mm





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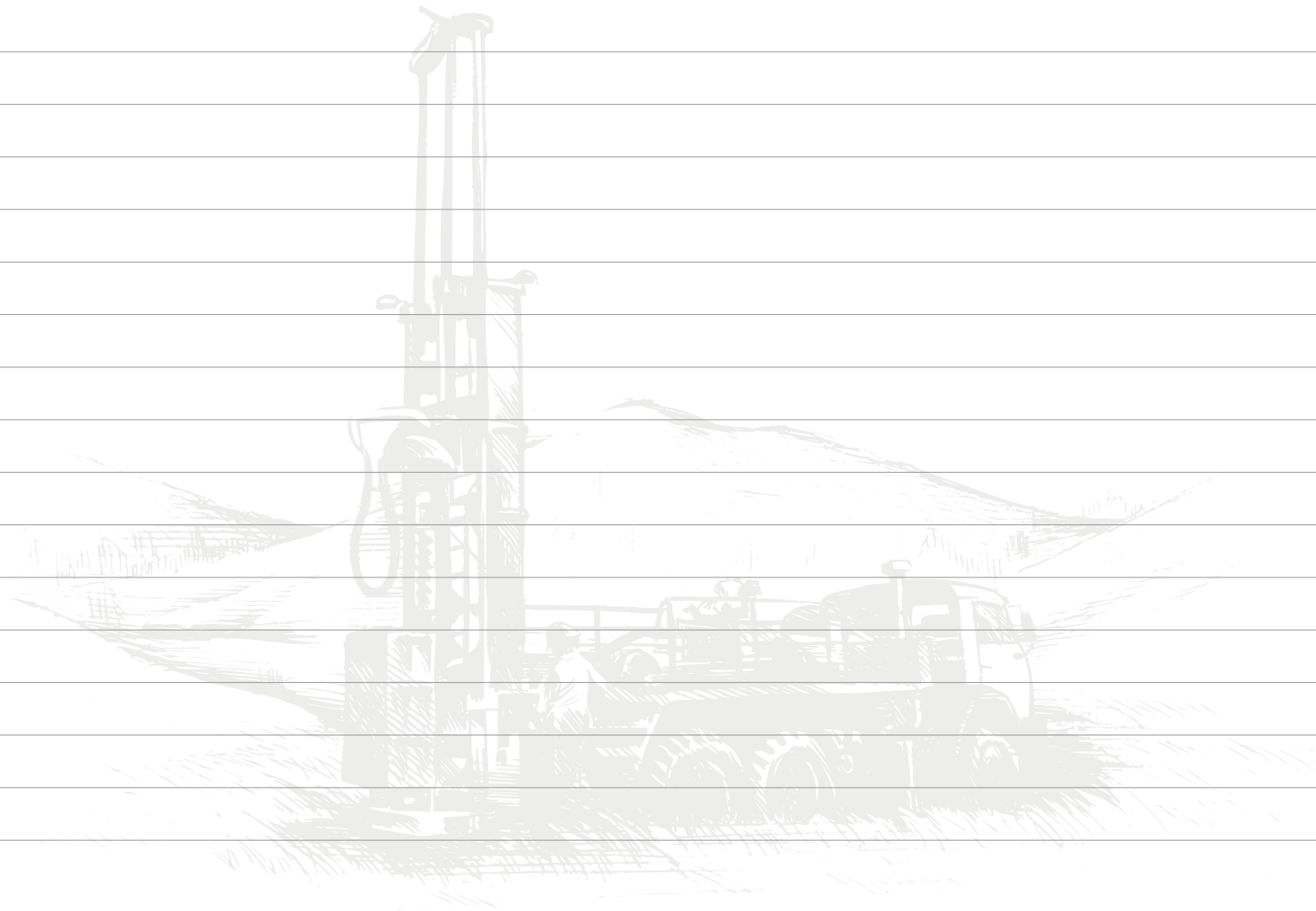
Notes





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Notes





For equipment purchase
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