

Terms of reference
for manufacture and supply of mining equipment for shotcreting
underground workings of Kumtor Gold Company CJSC

#	List of basic data and requirements	Basic data and requirements
1.	Place of delivery	KUMTOR GOLD COMPANY CJSC. Kyrgyz Republic, Balykchy Town, 9 Naryn Highway.
2.	Customer	Kumtor Gold Company CJSC, Underground mining
3.	General Provisions	The subject of the terms of reference is the purchase of one unit of mining equipment with a diesel-hydraulic drive and a compressor, intended for the application of wet shotcrete when securing underground mine workings. The unit is designed to apply a concrete mixture by wet method to the surface of workings to create a strengthening layer of support. The equipment must be new, not used or refurbished.
4.	Geometric characteristics of workings	Maximum Height: - Capital workings - 5200 mm. - Operating workings – 4500 mm. Maximum width: - Capital workings - 5500 mm. - Operating workings – 4500 mm. Minimum outer turning radius, 7400 mm. Minimum internal turning radius, 4000 mm. Maximum slope of the decline, 15% The road surface - rock.
5.	Environmental properties	1. Altitude above sea level - up to 4000 m. 2. Ambient temperature from -35 °C to +40 °C 3. The air temperature of the mine is from +2 to +5 °C 4. Mine water cut (humidity), 70% 5. Air supply: 20 m3/s 6. Water Supply – Process Water 7. Gas contamination – no 8. Dustiness – None
6.	Requirements to the equipment	
6.1.	Technical specifications	1.1. Model, brand and manufacturer based on the results of the selection, 1.2. Tank capacity: for consideration, 1.3. Year of manufacture: not earlier than 2025, 2. Engine: 2.1 Brand: <i>Preferably Mercedes-Benz or Deutz</i>, 2.2 Fuel: Diesel 2.3 Scope: for consideration, 2.4 Power: for consideration 2.5 Turbine availability: yes, 2.6 Turbo timer (engine shutdown delay system) for cooling the engine and turbocharger,

		2.7 Liquid cooling system, 2.8 Exhaust system - Catalytic converter and muffler, <i>The engine must be approved for operation in the mine. Adaptation to work in high-altitude conditions and the Arctic package.</i> <i>The equipment operates around the clock, the duration of the technological shift is 11 hours, 365 days a year.</i>
6.2.	Electrical System Requirements	1. Mains voltage - 24 V, 2. Accumulator battery – more than 2 pcs., 3. Yellow flashing beacon – 1 pc., 4. LED parking lights, brake lights, turn signals and indication signals, 5. Front and rear lighting – LED 6. Electrical wiring in a fireproof and waterproof sheath,
6.3	Chassis	1. Load capacity is under consideration
6.4.	Brake system	1. Service brake: hydraulic dual-circuit closed braking system, oil bath multi-disc brakes on both axles. 2. Safety / parking brake: reverse acting, normally braked by springs, hydraulic shut-off.
6.5.	Tires	1. Single, pneumatic, tubeless 12.00–20 PR 20. (the dimensions to be specified when choosing the equipment) 2. Spare tire assembly - minimum 1 pc.
6.6.	Steering	1. Hydraulic articulated steering, type Orbitrol, 2. Frame hinge rotation angle: +/- 40° (to be agreed).
6.7.	Transmission	1. Hydromechanical gearbox with hydraulic pump drive, 2. All-wheel drive.
6.8.	Hydraulic system	1. Variable displacement pumps (steering and boom) – model and brand for consideration. 2. Performance: $\alpha\pi\kappa$ consideration, 3. The volume of the oil tank is provided by the plant, 4. Oil filtration on the return line, 5. Level, filtration and temperature indication.
6.9.	Fire protection system	1. Availability of an automatic fire extinguishing system, 2. Availability of portable fire extinguishers.
	Cabin	1. Cab Type: Enclosed Cab, Falling Object/Rollover Protection (ISO 3449/ISO 3471), ROPS & FOPS 2. Driver's seat: T-backrest seat with air suspension, with 3-point seat belt, 3. Heating/air conditioning – Yes, 4. Multi-function display displaying: speed, RPM, engine hours, fluid levels, temperature, pressure, alarms, fault codes, etc. 5. Two rear-view mirrors, 6. Rear view camera, Steering marking in Russian.

6.10.	Lubrication System	Centralized lubrication system.
6.11.	Remote Control	Radio control of the shotcrete boom. Control joystick – 2 pcs.
6.12.	Shotcrete boom	Rotation angle - 270° The angle of ascent is +75° - 20° Folding angle - +165°...- 60° Extension – up to 2500 mm. Nozzle rotation angle 420° Nozzle angle 105°
6.13.	Main Parameters of Concrete Pump	The method of shotcrete is wet mix shotcrete. Wear-resistant piston concrete pump/ The capacity for supplying the concrete mixture is at least from 4 to 20 m³/h. Max. Aggregate particle size – up to 10 mm. Use of fiber (up to 55-65 mm long). The maximum range of the mixture supply through the hose is up to 100 m. The supply pressure of the concrete mixture is 5–8 MPa The diameter of the hose supply is at least 65 mm. The maximum height of the mixture application is up to 10 m.
6.14.	Chemical additive system	The volume of the tank of chemical additives - 500 l. Built-in additive pump (accelerator). Maximum pressure up to 13 bar. Dosing control with parameter display
6.15.	Air compressor	To ensure the operation of the shotcrete machine using the wet spraying method, it is necessary to provide a built-in air compressor. A type of compressor of industrial design, designed for operation in mining conditions (increased dust, temperature differences, humidity). Capacity - 8 m³/min. Operating pressure: at least 7–8 bar. Compressor with diesel-hydraulic drive. Possible machine configuration with an integrated electric compressor with the same output (8 m³/min) when connected to a 380 V, 50 Hz mains.
6.16.	Water supply	Presence of a water hose reel Hose length – 30-40 m. To flush the system after the shift, it is necessary to provide a high-pressure washer.
7	Spare parts and tools	1. The supplier must supply a set of spare parts for 2000 engine hours along with the equipment, 2. Special tools for technical equipment, 3. Wheel chocks with brackets.
8	Technical documentation	1. The supplier, together with the equipment, undertakes to provide accompanying technical documentation (certificates of conformity, technical passports, operating instructions, spare parts catalog and other necessary documents for safe operation, as well as for customs clearance and registration in the state bodies of the Kyrgyz Republic).

		2. Operating and maintenance instructions - 2 copies. 3. Spare parts catalogue - 2 copies. 4. Documentation in PDF format for USD - 2 pcs. 5. Certificate of Quality and Origin, <i>All documents must be submitted both electronically and in paper form in Russian.</i>
9	Warranty period	1. The supplier must provide a warranty period for the purchased equipment of at least 12 months from the date of commissioning, 2. Availability of a service center and a warehouse of spare parts on the territory of the Kyrgyz Republic. 3. In the absence of a service center and a spare parts warehouse in the territory of the Customer's country the Supplier undertakes to create the necessary conditions for the organization of service and technical support in the country of residence of the Customer. The equipment must be operated around the clock (24/7). 4. The Supplier shall conduct training for the Customer's personnel at the Kumtor mine.
10.	Equipment acceptance	Acceptance of equipment in terms of qualitative and quantitative indicators is carried out on the territory of the Kumtor mine with the participation of a representative of the Supplier.
11.	Launch	1. All costs for additional work identified during the inspection of the equipment shall be borne by the Supplier.
12.	Quality Assessment Criteria	1. After commissioning, the equipment is evaluated during the warranty period. The characteristic must correspond to the manufacturer readings. 2. In case of non-compliance with our requirements, the Supplier assumes all costs for their elimination.
13.	Payment terms and delivery times	1. Payment terms: according to the Agreement. 2. Delivery is carried out at the expense and by the Supplier. 3. Terms of delivery: for non-residents of the Kyrgyz Republic - DAP, for residents of the Kyrgyz Republic - DDP. 4. Place of delivery: Kyrgyz Republic, Balykchy Town, 9 Naryn Highway. 5. Delivery time: up to 160 calendar days from the date of signing the Agreement by the Parties. 6. Assembly and commissioning on time by the Customer.
14.	Technical Regulations and Standards	The equipment must comply with the requirements established by the current Technical Regulation of the Customs Union (TR CU 010/2011) "On the safety of machinery and equipment" and other current requirements of the EAEU (if necessary).
15.	Safety	Braking and overload protection systems, fire-fighting equipment and lighting in accordance with technical data sheets. Moving parts of equipment that pose a source of danger to people must be guarded, except for parts that cannot be guarded due to their functional purpose. Fences must be supplied complete with technical devices for the installation of this fence.
16.	Note	The requirements specified in this ToR are indicative and may be adjusted in the process of discussion with potential suppliers.

Illustrative photo from the Internet

