BROKK

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Brokk in the Moscow Metro System

The Moscow Metro, which spans almost the entire Russian capital, is one of the world's most heavily used metro systems. It is well known for its stations, which often are called "the people's palaces", for their elegant designs and lavish and profuse use of marble, mosaics, sculptures and chandeliers. These metro stations display the best of Soviet architecture and design and contain beautiful examples of socialist realist art.

Although plans proposing the construction of an underground train system in Moscow were drawn up in 1902 and again in 1912, the outbreak of WWI, and later the revolution, delayed the start of the project for many years. The first line, the Sokolnicheskaya Line, was finally and ceremoniously inaugurated on 15th May 1935, boasting just 13 stations. Today the Metro system has grown into an enormous network of 11 lines and over 160 stations, with new stations opening every year.

Transtonnelstroy Ltd. was contracted for the construction of metro station facilities such as passages, escalators, etc. for the construction of the entire Sretensky Boulevard Station along the original Sokolnicheskaya Line.

Because of close location to the working tunnels and stations of Kaluzhsko-Rizhskaya and Sokolnicheskaya Lines - the distance is less than 5 meters - tunnelling with blasting technique is restricted or not permitted. There were also restrictions on the descending and transportation of the equipment that had to be considered. Basically, no equipment over 5 tonnes could be brought down to the work site.

These restrictions in fact left two options: Brokk machines or manual excavation with jack-hammers. Based on Transtonnelstroy's previous experience, a single Brokk machine substitutes for 6-8 people working with jack-hammers. I addition, the Brokk is used for digging and substitutes for another 5-6 people with shovels. Thus, the choice of using Brokk was easy.

Apart from the efficiency of the Brokk machine, there were several other factors influencing the decision:

1. Electric drive: Diesel machines would require additional devices of emissions purification in underground spaces and extra measures connected with ventilation.
2. Compact size and weight: easy to descend and transport the machine to the work site.
3. Tools. Brokk 330 machines are equipped with quick-hitch system to fix tools and accessories weighing up to 500 kg (hydraulic breaker, cutter, etc.) and size suitable fitting working site up to 5 meters.
4. Remote control system. Remote control is realized both through cable and wireless communication, ensuring operator safety.

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