

Keynote Paper

Research and Application of TBM Safe, Efficient and Intelligent Tunneling Technology

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ABSTRACT

The hard rock tunnel boring machine (TBM) has been widely used in the construction of water conservancy, hydropower, railway and other tunnels. Due to TBM operations are highly dependent on human experience, lack of information perception and scientific decision-making, leading to frequent occurrence of various engineering accidents, causing serious economic losses and construction delays. It is urgent to study intelligent tunneling technology to ensure safe and efficient construction of TBM.

The TBM construction big data platform was developed and the TBM rock-machine database was established. The technical research work had been carried out such as rock real-time sensing, optimization of excavation parameters, intelligent correction, intelligent support decision-making, etc. The TBM-SMART intelligent excavation system was developed. After multiple project applications, the stability and accuracy of the system have been improved. Related technologies and products can increase the operating rate of TBM, effectively avoid major construction risks, and escort TBM construction.

REFERENCES

N.A.