



Innovative Tunnelling: elevating safety and efficiency in the Terzo Valico dei Giovi project

The Terzo Valico dei Giovi project is a transformative initiative spanning over 30 kilometers, enhancing Italy's railway infrastructure. It adapts and creates new roadways to bolster transportation links, aiming for a 33% reduction in travel times between Genoa and Milan. Beyond its national impact, the project strategically positions itself as a vital connector between Italy and Northern Europe, fortifying essential railway links for seamless cross-border movement of goods and passengers.



However, the journey through the excavation phase has been far from straightforward, encountering formidable geological intricacies that have given rise to substantial challenges.

The instability of the mass and the distress of the primary lining prompted the installation of struts, crucial for maintaining stability at the excavation front and preventing delays in project advancement. These challenges not only impacted production but also raised apprehensions regarding the safety and timeliness of the ongoing operations. The primary concern was to safeguard workers and expedite the primary lining phase, ensuring seamless operations.





In response to these challenges, Maccaferri presented an innovative solution that went beyond traditional approaches. Introducing Automated Tunnel Ribs HEB 300, complete with automated hinges and automated links, covering an impressive 3.7 kilometers, marked a groundbreaking step. Complementing this, fiberglass reinforced solutions (GFRP) pipes spanning 250,000 meters were employed. The decision to embrace this solution was steered by its unique set of advantages.

The use of automated tunnel ribs in conventional excavation allows for the elimination of personnel near the excavation face. Automated joint connections and links are safely carried out away from the excavation face, therefore the rib can be installed as pre-assembled. Both the opening phase and the perfect adjustment of the rib to the tunnel's excavation are done by operating the machine from a safe distance from the excavation face. Finally, the installation of the invert strut is carried out at the excavation face, improving accuracy and increasing the speed of operations in absolute safety conditions. This revolutionary method significantly bolstered the stability of the excavation, enabling the final linings to be strategically positioned further from the front and, consequently, amplifying production rates.

The true uniqueness and advantages of Maccaferri's solution became apparent. The automated installation not only ensured speed and precision in execution but, most importantly, marked a substantial increase in worker safety. This streamlined process ensured both operational efficiency and a high standard of accuracy, setting Maccaferri's approach apart in terms of both safety and productivity.

