

Case Study

Shotcrete

Industry: Construction



BACKER GROUP MEMBER 

Specialists in thermal process equipment for highly aggressive and corrosive liquids

Shotcrete is a comprehensive term for the technique of spraying concrete or mortar, using either a dry or wet mix process. Originating in the early 1930s, the term was initially defined by the American Railway Engineers Association (AREA). By 1951, Shotcrete had become the official generic name for the sprayed concrete process, encompassing both the wet and dry methods.

Application of Shotcrete:

Shotcrete is widely utilized across various construction and engineering projects due to its versatility and efficiency. Some common applications include:

1. **Tunnel Lining:** Shotcrete is often used to line the walls of tunnels in mines, subways, and roadway tunnels. A notable example is the fire-resistant shotcrete developed in Norway, which has been employed in the Marmaray tunnel in Istanbul.
2. **Excavation Reinforcement:** It is used to stabilize both temporary and permanent excavations. When combined with lagging and other forms of earth anchors, Shotcrete provides a robust and waterproof enclosure for underground structures such as parking garages and high-rise buildings during their construction phase.
3. **Structural Concrete Placement:** Shotcrete serves as an effective method for placing structural concrete, offering a faster alternative to traditional non-mechanized application methods.
4. **Hard Rock Mining:** In the mining industry, Shotcrete is crucial for the development of decline pathways, ensuring safe movement of heavy machinery, miners, and materials by preventing ground falls.



Braude Control Panel encompassing heater, temperature & level sensors and pump

Innovations in Shotcrete Technology

One of the key advancements in the Shotcrete industry is the integration of advanced heating systems to ensure the optimal performance of concrete mixes. Braude has been at the forefront of this innovation, supplying portable water heating systems to concrete premixing and spraying companies. Our systems feature non-corrodible Teflon heaters with long and flexible leads, along with built-in pumps, temperature, and level control systems. These kits are designed for quick and easy setup, offering a hassle-free replacement process.

Our Contribution to Major Projects

Braude heating systems have been widely appreciated by tunnel builders and mining companies across the UK. Many of our clients have successfully utilized our kits in significant projects such as the HS2 high-speed railway. With nearly a decade of proven performance, our heating systems have become an essential component in ensuring the quality and reliability of shotcrete applications.

Conclusion

Shotcrete continues to be an indispensable technique in modern construction, providing efficient and versatile solutions for various structural and reinforcement needs. Innovations such as Braude's portable heating systems further enhance the efficacy of Shotcrete, making it a preferred choice for projects requiring reliable and rapid concrete application.

For more information on our products and how they can benefit your construction projects, feel free to [contact us](#).

About Braude

Braude specializes in providing advanced heating systems for the construction and mining industries. With a commitment to innovation and quality, we offer solutions that meet the demanding needs of our clients, ensuring optimal performance and reliability in all applications.

The Braude range of thermal equipment is specifically designed for individual processes and includes; electric tank heaters, heat exchangers, pumps, controllers and a range of accessories.

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