



360° CONSULTANCY **SHOTCRETE APPLICATION**

We are shotcrete specialists and pioneers in introducing wet-mix shotcrete to the industry, as well as in developing the ideal equipment to execute it—our Wetkret machines. Over the years, we've continuously invested in creating increasingly precise and robust equipment, as well as complementary solutions for transporting the mix to the site. Our global experience in underground projects has given us extensive insight into every aspect of the shotcrete process.

This is why we believe we can support you with your project. In our 360° consultancy, we come to your site to examine the complete shotcrete cycle—from mixing at the concrete plant to projection on-site, including transport, quality testing, and projection techniques—because every detail counts. After our assessment, we provide points for improvement, recommendations, and short- and long-term action plans to enhance your project's efficiency without compromising safety.

We can focus on specific parts of the process as needed, but our goal is to offer a comprehensive service that addresses every step to maximise the effectiveness of your shotcrete projection.

WHY CHOOSE A 360° CONSULTANCY WITH PUTZMEISTER UNDERGROUND?

- Leverage the expertise of a market leader
- Analyse the full shotcrete cycle, where no detail is overlooked
- Details can make a difference and small adjustments can significantly boost process efficiency
- The consultancy doesn't disrupt your operations, quite the opposite - we need to see normal working conditions to pinpoint areas for improvement
- Following the consultancy, actionable recommendations that deliver tangible benefits can be implemented

WE STUDY ALL PARTS OF THE PROCESS AND RESOLVE ISSUES SUCH AS:

1. MIX DESIGN

Are the aggregates appropriate in terms of grain size, quantity, and quality? Am I using the correct water dosage? Could I add fine materials to improve the mix? Is the slump test being done correctly?

2. CONCRETE PLANT

Is the design optimal? Am I getting the most out of it? Is it located in the best position to preserve mix quality during transport to the site?

3. TRANSPORT TO THE SITE

What's better for me, a mixing truck or a transport-only vehicle? Am I using the right rotation speed during loading, transport, and unloading? Is my mixer truck in optimal conditions for transport? How can I improve its maintenance?

4. ROBOTIC SHOTCRETE MACHINE

Am I preparing the equipment correctly before starting work? Is my projection rate appropriate? What about the additive dosage? Am I using the right amount of air? Do I clean the robot properly to extend its life? How can I improve its maintenance?

5. SHOTCRETE MIX

Should I use additives to improve projection quality? Which ones from the wide range available? And accelerators? What fibres should I use for extra strength? How do I dose and pump them?

6. PROJECTION TECHNIQUES

Am I using the correct projection technique? Am I properly covering the surface to be supported? How can I reduce rebound? And enhance operator safety?

7. QUALITY TESTING

Am I using the best technique to measure projection quality? Is it safe?



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