

DURUS® EasyShot 50*

MAXIMIZING REINFORCEMENT
PERFORMANCE IN SPRAYED CONCRETE



Durus EasyShot 50 is the latest addition to the Adfil range of high-performance synthetic concrete reinforcement fibres. This product is specifically designed for the application in sprayed concrete. It is the result of more than two years of research and development work conducted at our state-of-the-art concrete laboratory. Durus EasyShot 50 has been tested at independent institutes.

3D-reinforcement

Replacing steel mesh, Durus EasyShot 50 synthetic macro fibres improve the economics of every shotcrete project, providing reliable three-dimensional primary reinforcement. Typical end-uses include tunnelling and mining. Immediately after spraying, Durus EasyShot 50 significantly increases the ductility of the concrete while reducing shrinkage cracking. This creates a safe work environment while extending the service life of the finished concrete surface. The ductility of Durus EasyShot 50 reinforced concrete has been tested according to EN 14488-5 as well as its American equivalent ASTM C1550.

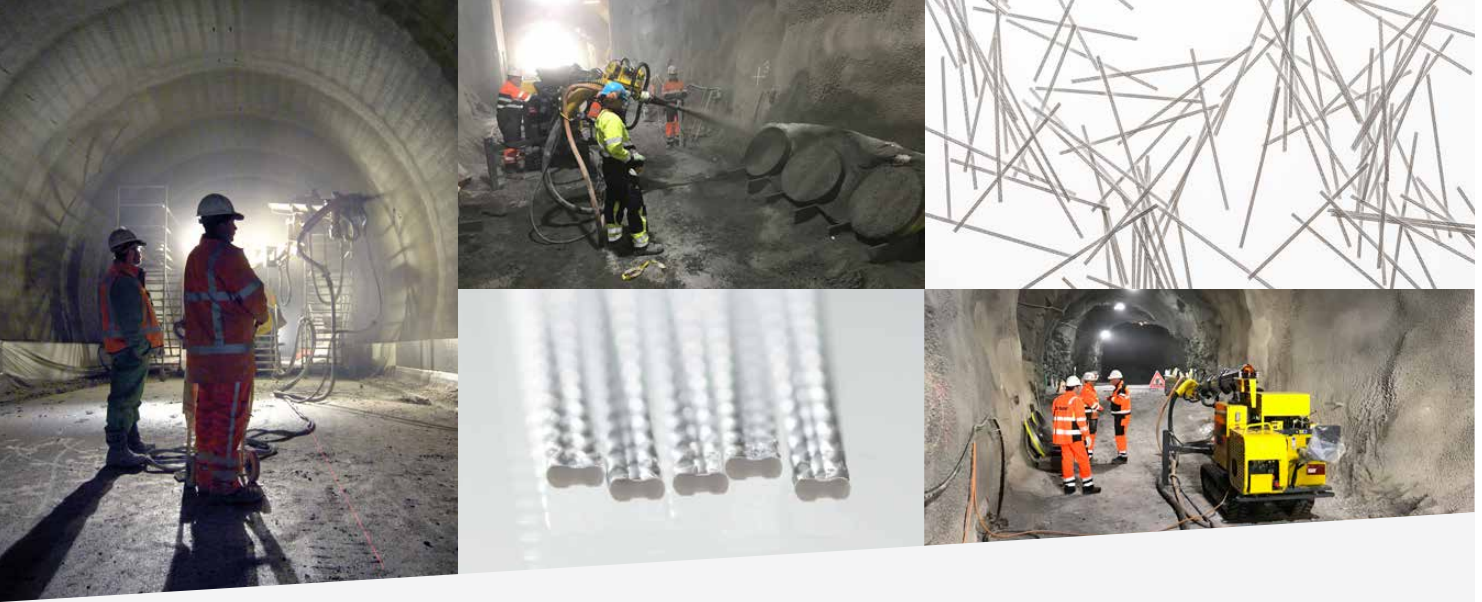
Outstanding workability

The tensile strength of Durus EasyShot 50 is up to 30% higher than that of conventional fibres. The product incorporates the embossed elongated design, which make Durus macro

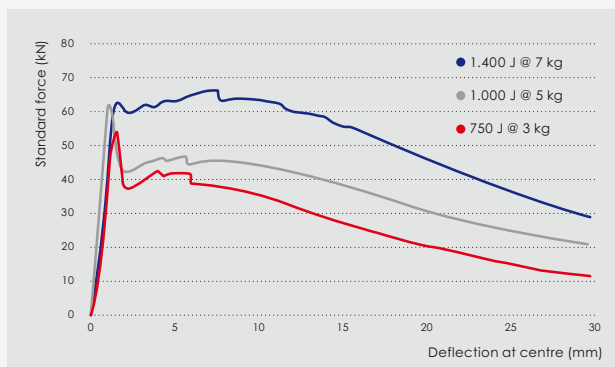
fibres unique in the industry. Moreover, both the polymer architecture and fibre length of Durus EasyShot 50 have been tailored for use in sprayed concrete. The product can be easily mixed into the concrete leading to a homogenous distribution of the reinforcement. This ensures consistently high performance in every part of the structure.

Performance testing

Durus EasyShot 50 combines the benefits of different engineered fibres which were manufactured in the course of the product development process. The performance of each fibre has been tested with cast panels to avoid the influences of the application of shotcrete during spraying. Sprayed panels however better represent the in-situ behaviour of the fibre. Independent sprayed shotcrete panels are needed in order to provide a complete overview of the performance of the fibre.



Energy absorption according to EN 14488-5:2006



- 100% rust-free, hence no crack width limitation for durability as with steel
- Significant reduction in embodied CO₂ when compared with steel
- Less wear and tear on pumps and slick lines

General applications

- Tunnels (initial support in hard rock and soft ground, reinforcement of linings)
- Mines (initial support in hard rock and soft ground)
- Slopes (stabilization)

All Durus macro synthetic fibres are chemically inert and have been subjected to the EN ISO 13438 aging test, which proved 100 years durability under normal conditions (see website for full report).

Geometry

The length and the diameter of Durus EasyShot 50 have been tailored to provide maximum pull-out force over growing cracks. This ensures optimum performance over the full concrete surface. Each fibre delivers durable reinforcement and energy absorption and facilitates the transfer of high loads even over large crack widths that can occur in shotcrete in tunnelling and mining applications.

Quality assurance

Durus EasyShot complies to EN 14889 - 2 : 2006 (EC Certificate of Conformity). The Quality Management Systems of Low & Bonar facilities have been approved to the ISO 9001 Quality Management System Standard. Certificates are available on request. Adfil products are manufactured to exacting standards on technologically advanced production and packaging lines allowing constant monitoring of quality.

Adfil. Reinforced concrete reinvented.

Versuchsstollen Hagerbach (VSH)

The Hagerbach Test Gallery is a fascinating subterranean world. A multitude of galleries, caverns, testing areas, laboratories and training rooms provides the ideal conditions for research, development, testing and full scale experiments. Adfil therefore chose to have shotcrete testing performed with the latest equipment at VSH. Durus EasyShot 50 proved to be an exceptional fibre with state-of-the-art performance. The test results are available on request.

Outperforms steel

As Durus EasyShot 50 macro synthetic fibres are flexible, their length is not limited by the opening size of the nozzle. This is a major advantage over steel. Rigid steel fibres have to be produced shorter or they block the nozzle during spraying. This limits the performance of the fibres in the concrete.

Advantages and benefits

- Easy to handle and to apply
- Reduced rebound during spraying
- Improved construction site safety
- Enhanced long-term properties of the finished concrete
- Low cost per Joule energy absorption

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