# ArcelorMittal Fibres

Reinforced concrete solutions

# Transforming reinforced concrete for the tunnel construction industry.







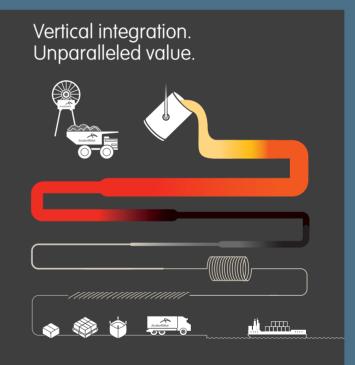
ArcelorMittal Fibres is working with Engineers, Construction companies and suppliers of Precast and Ready-mix products on some of the most challenging tunnelling projects in the world.

Our partnerships with clients responsible for major engineering and construction contracts is transforming the reinforced concrete industry and creating a better-built world; a world that is being constructed more quickly, more safely, more efficiently and with greater creative ingenuity.

ArcelorMittal Fibres, part of the ArcelorMittal Group – the metals and mining industry leader, is an industry expert and global provider of reinforced concrete solutions.

From our three state-of-the-art production facilities in the UK, Luxembourg and Poland, we develop, manufacture and supply premium quality steel fibres to construction markets around the world.





Our mining, steel production, processing, manufacturing and distribution operations are all undertaken by ArcelorMittal.

Our fully integrated business model gives us complete control over the quality of our raw materials and the highest levels of confidence in our production methods and processes, saving us time and resources.

This, combined with our world class technical expertise, gives our customers unparalleled value.

# Supporting you from start to finish. The right advice. The right fibres. The right solutions.

Arcelor/Mittal Fibres do much more than manufacture and supply a comprehensive range of premium quality steel fibres. We support you to ensure the success of your project from start to finish.

### WE OFFER EXPERTISE ON:

- setting up your project specification
- the most appropriate fibre type to comply with the specification
- optimum dosage rates to guarantee performance
- concrete mix design optimisation

- the supervision of performance tests
- on-site support and advice on dosing and mixing
- the installation of dosing equipment

We provide all the support your project requires, from the early planning stages through to project completion. We are here to support and assist you at every stage.

"ArcelorMittal Fibres provided expertise and support from start to finish. Supporting us throughout was something they did very well."

### Nick Lowe

Production Manager – Segment Factory, Dragados-Sisk Joint Venture. Crossrail Thames Tunnel – East.

### ACCESS TO A GLOBAL RESEARCH & DEVELOPMENT NETWORK

Operating for all ArcelorMittal group units, ArcelorMittal Fibres benefits from the group's worldwide research and development resources. This is the cornerstone of sustainable development and innovation and it ensures the continuous renewal of ArcelorMittal's product offer.

### Worldwide the ArcelorMittal group has:



researchers



12 rese site

€219 million spending



# EXPERTISE AND AMBITION

ArcelorMittal Fibres is the first-choice provider of reinforced concrete solutions. We have earned our reputation through:

# OUR EXPERTISE and the constantly expanding knowledge base of our engineers.

Our hands-on approach and the added value we bring to the design of precast tunnel linings, shotcrete, underground metro and sewerage infrastructure and mining solutions gives us an insight that goes beyond the theoretical.

OUR AMBITION to support our customers to build structures more quickly, more safely, more efficiently and with greater creative ingenuity.

in total in 2016 of whic around €175 million spent in Europe

# ArcelorMittal Fibres. Reinforced concrete solutions for the tunnelling industry.

Our long-standing experience, combined with our ongoing commitment to the development of the best performing steel fibres, has enabled us to develop a comprehensive range of advanced steel fibres for use in shotcrete and precast tunnel lining segments.

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# SHOTCRETE SOLUTIONS



Shotcrete works at Crossrail, London © Crossrail Ltd.

# Time and cost savings

- Reduced volume of concrete required
- Easier mould filling and casting
- No rebar required
- Increased safety on-site
- Reduced material inventory



# PRECAST TUNNEL LINING SEGMENTS



Installation of fibre reinforced tunnel segments, Doha Metro, Qatar.

# ArcelorMittal Fibres – Reinforced precast solutions

The load bearing resistance allows the partial or complete substitution of traditional reinforcement.

Tighter aggregate interlock

Minimal damage to edges and corners due to even distribution of fibres to the edges

The load bearing resistance allows the partial or complete substitution of traditional reinforcement

Elimination of defects caused by incorrect positioning of traditional rebar

Reduced surface cracking

3 dimensional distribution of fibres in the concrete matrix provides reliable tensile strength in all directions

Discontinuous reinforcement – improved corrosion resistance.

# ArcelorMittal Fibres – Reinforced shotcrete solutions

Shotcrete solutions for temporary and permanent applications



Traditional mesh reinforced shotcrete Uneven application of shotcrete due to mesh form therefore more material required



Fibre reinforced shotcrete

Even application of fibre reinforced shotcrete therefore less material required

Reinforced shotcrete solutions are developed using bespoke combinations of aggregates, plasticisers, accelerators and fibres

> Safer installation – rapid stabilisation of rock face reduces time workers are exposed to risk

Superior ductility – due to tensile performance of steel fibres

Improved impact and abrasion resistance

Reduced surface cracking

Even layer of shotcrete over rock profile reduces material requirements (not possible with traditional reinforcement techniques)

3 dimensional distribution of fibres in the concrete matrix provides reliable tensile strength in all directions

Efficient installation – reinforced shotcrete applied in one simple step

Increased explosive spalling resistance (fire)

Optimum levels of resistance to axial compression

# The world is building on our expertise.

ArcelorMittal Fibres operates internationally. We are providing steel fibre reinforced concrete solutions for the tunnelling industry and participating in some of the world's major infrastructure projects.

# Let's talk TUNNELS

Contact: tunnels@arcelormittal.com



ArcelorMittal Fibres ArcelorMittal Bissen & Bettembourg, Route de Finsterthal, L-7769 Bissen

Telephone +352 835 772 1 Fax +352 835 772 209

arcelormittal.com/steelfibres

