ArcelorMittal Fibres

ArcelorMittal

Sustainable steel fibre reinforced concrete for the flooring industry

Sustainable steel fibre reinforced concrete for the flooring industry

Contents

Optimised concrete flooring solutions for every project

ArcelorMittal Fibres is working with Engineers, Flooring Contractors and Ready Mix companies around the world to provide optimised concrete flooring solutions. Our partnerships are enabling **high performance concrete** floor slabs to be constructed more **quickly**, more **safely**, more **efficiently** and more **sustainably.**

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

For more than three decades, ArcelorMittal Fibres has been working with industrial concrete flooring specialists to develop and improve concrete slab performance.

STEEL FIBRES FOR CONCRETE FLOORING APPLICATIONS

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

ArcelorMittal Fibres have developed four diverse solutions for the construction of reinforced concrete floors.

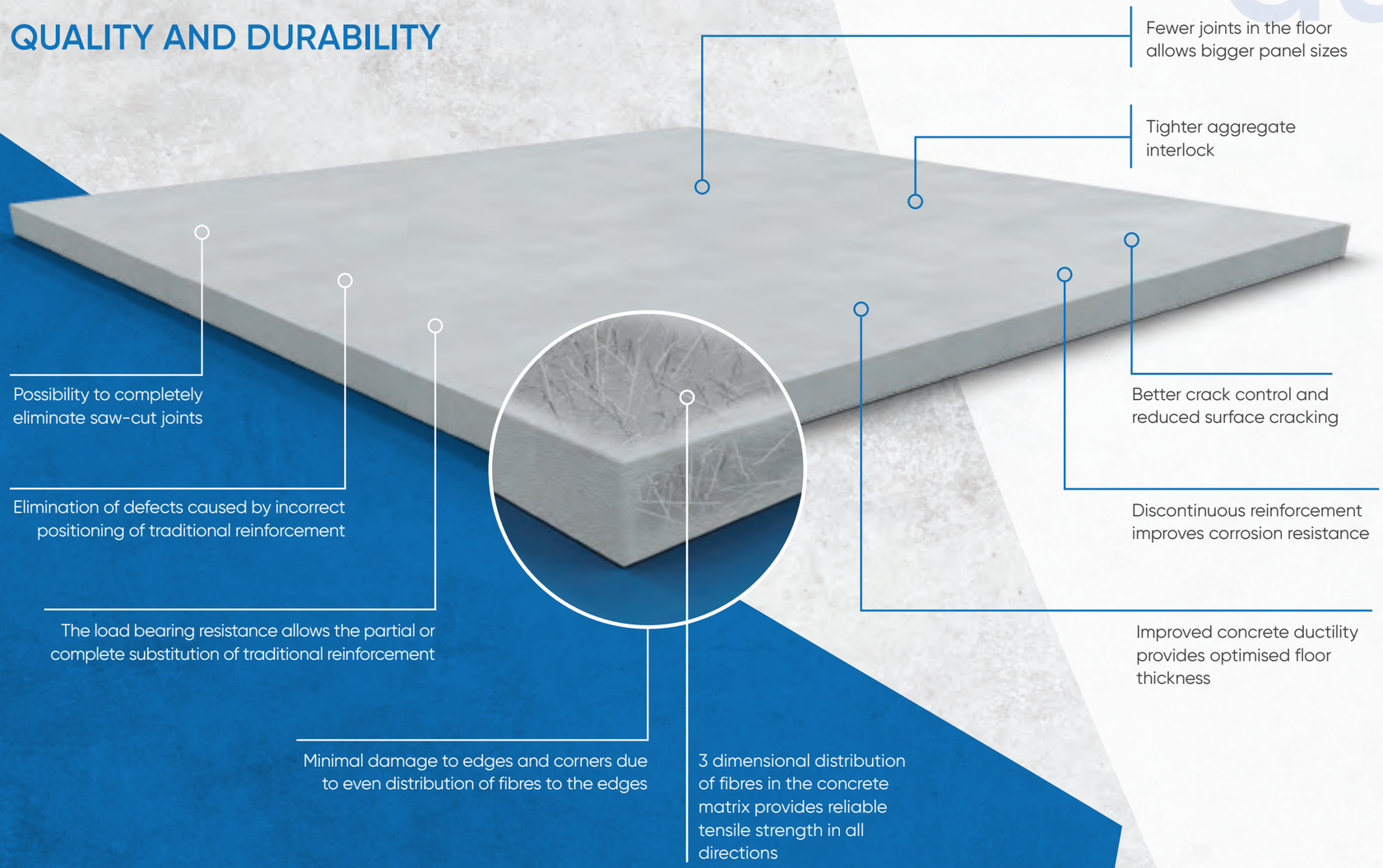
- **TAB®Light**
  Slabs on grade with low loads
- **TAB®Fibre**
  Slabs on grade with saw-cut joints
- **TAB®Floor**
  Jointless slabs on grade
- **TAB®Structural**
  Jointless slabs on piles

OUR STEEL FIBRE REINFORCED CONCRETE FLOOR SOLUTIONS ARE WIDELY USED ACROSS:

- Retail
- Residential
- Commercial offices
- Entertainment
- Production plants
- Warehouses
- Distribution & Container terminals
- Car parks
- Quaysides
- Arenas
- Stadiums
- Airports
- Transportation depots

Enhanced quality and durability with time and cost savings

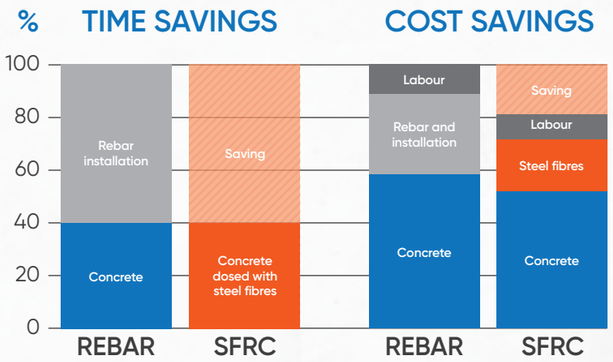
QUALITY AND DURABILITY



quality durability cost time

TIME AND COST SAVINGS

- Optimisation of concrete slab thickness
- Traditional reinforcement can be totally or partially replaced
- Potential to eliminate all saw-cut joints
- Faster concreting allowing higher volume of pouring areas per day with fewer joints
- Direct pouring from concrete truck – no pumping required
- Enables easier concreting
- Increased safety on-site



To discuss the details of time and cost savings that can be made on your next project, please contact our team at **fibresupport@arcelormittal.com**

Supporting you from start to finish

The right advice. The right fibres. The right solutions.

ArcelorMittal Fibres do much more than manufacture and supply a comprehensive range of high quality steel fibres.

We support you to ensure the success of your project from start to finish.

WE OFFER EXPERTISE ON:

- Design and calculation of steel fibre reinforced concrete floors
- 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

Our team of experienced Engineers and Sales Managers will give you all the support your project needs from conception to the project completion.

We are here to support and assist you at every stage.

How we create our fibre solution:

Collection of project information

Static calculation of slab on grade

Specification of fibre solution

Advice on concrete mix and dosing of fibres

Detailing: local reinforcement & joints

FIBRES IN ACTION

3 in 1. Three bespoke flooring solutions are used for SMC Vyškov - the leading experts in industrial automation

The increased scale of its operations in Vyškov, Czech Republic has meant that SMC Vyškov has now completed the construction of 3 new facilities, with a total flooring area of 16,000m².

The design specifications for each floor is critical to the long term success of the project. Factors such as ground conditions and functionality, including dynamic and static load bearing floors influenced the 3 different solutions that were specified. In the case of SMC Vyškov, the 3 solutions were developed in order to address varying ground conditions across the site, as well as short and long term functionality and load bearing requirements of the newly constructed facilities.

Project title:
SMC Vyškov

General Contractor:
Kajima

Area:
16,000m²

Location:
Vyškov, Czech Republic

Flooring Contractor:
Techfloor s.r.o.

Date of realisation:
2024

Specification

Slab thickness:	TAB®Floor 190mm	TAB®Fibre 200mm	TAB®Structural 350mm
Dosage:	25kg	15kg	45kg
Fibre type:	HE 75/35	HE 75/35	HE+ 1/60
Concrete class:	C25/30	C25/30	C30/37

Building for tomorrow

Designing and building concrete floors with a lower carbon footprint.

At ArcelorMittal we strive to contribute to a more sustainable world through the production of smarter steels with lower carbon content. Our progress in the development of advanced steel fibre reinforced concrete solutions enables Developers, Engineers and Contractors to design and build more quickly, more safely, more efficiently and more sustainably.

Our advanced steel fibre reinforced concrete solutions allow Developers, Engineers and Contractors to optimise the design of concrete floors, allowing for material savings, compared to traditional reinforced concrete floors, resulting in important reductions in the carbon footprint of construction projects.

We are working closely with Developers, Project Owners, Engineers, and Contractors to support their ambitions to reduce the carbon footprint of their projects.

Our Engineers and Sales Managers will provide expert support to those designing and building concrete floors, providing the right advice and the right solutions to reduce the carbon content of each project.

Using the correct solution for your concrete floor will have a major impact on the carbon footprint of your project.

XCarb®
Recycled and renewably produced

XCarb® recycled and renewably produced steel fibres, manufactured with recycled steel and 100% renewable electricity, provide an exceptionally low carbon footprint.

CO_2 savings: Traditional rebar reinforced slab compared to SFRC slabs.

By replacing traditional rebar reinforcement with steel fibres, the carbon footprint of concrete floors can be reduced by more than 20%, compared to traditional rebar reinforced concrete floors.

Additional CO_2 savings:

Depending on ground conditions and the application of the project under construction, the use of steel fibre reinforced concrete can reduce the required thickness of the concrete slab, compared to traditional rebar reinforced slabs. The reduction in slab thickness further reduces the carbon footprint of your project.

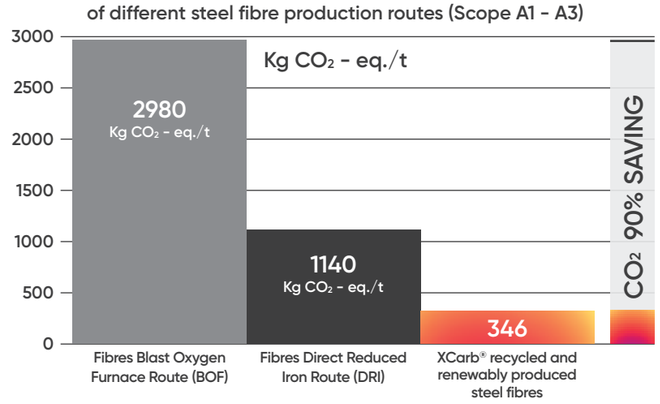
XCarb®

Recycled and renewably produced

ArcelorMittal Fibres have developed a new generation of steel fibre. XCarb® recycled and renewably produced steel fibres are manufactured with recycled steel and 100% renewable electricity. XCarb® recycled and renewably produced steel fibres further reduce the carbon footprint of construction projects, leading the way towards carbon neutrality.

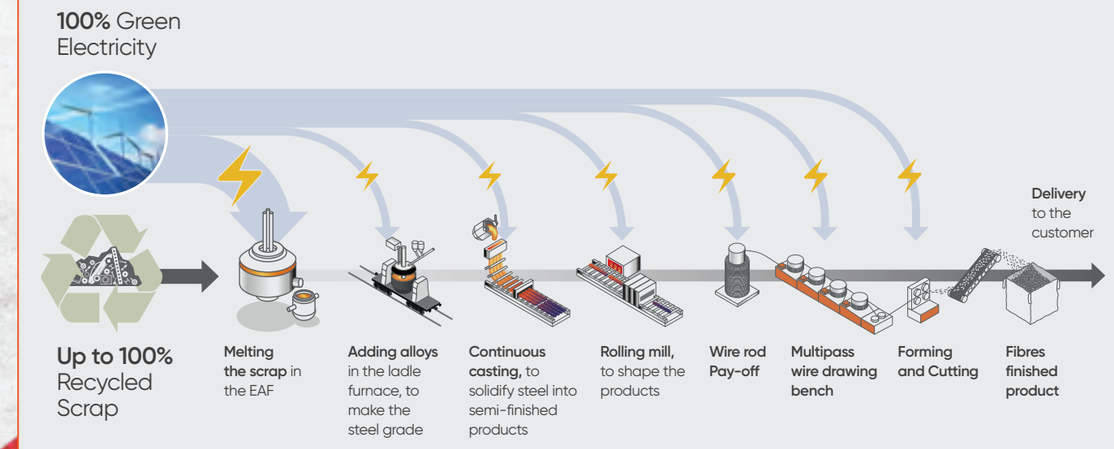
XCarb® recycled and renewably produced steel fibres can reduce embodied carbon by up to 90%, compared to conventionally produced steel fibres, leading the way to carbon neutrality.

Comparison of global warming potential (GWP) of different steel fibre production routes (Scope A1 - A3)



Kg CO_2 - eq./t values from EPD S-P-11903, EPD S-P-11871 and Steel Fibres Low Emission XCarb® recycled and renewably produced EPD Self Assessment SA-11/23

XCarb® recycled and renewably produced steel fibres process



RENEWABLE ENERGY

All of the electricity needed to transform the scrap into XCarb® recycled and renewably produced steel products comes from renewable sources such as solar and wind power.

GUARANTEE OF ORIGIN

The origin of the electricity used in the XCarb® recycled and renewably produced steel-making and steel fibre manufacturing process is guaranteed through the "Guarantee of Origin" European system.

The XCarb® recycled and renewably produced order system is audited by a third party.

DEDICATED PRODUCTION CERTIFICATE

Each tonne of steel fibres produced under the XCarb® recycled and renewably produced label will have a dedicated production certificate showing the kg of CO_2/tonne (Scope A1 - A3) of steel used and indicating the recycled steel content.

ArcelorMittal Fibres

The first-choice provider of steel fibre reinforced concrete solutions.

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.

OUR EXPERTISE

OUR HANDS ON APPROACH enables us to support our partners and ensure the success of every project.

OUR SOLUTIONS deliver exceptional levels of added value to the design of steel fibre reinforced concrete floors.

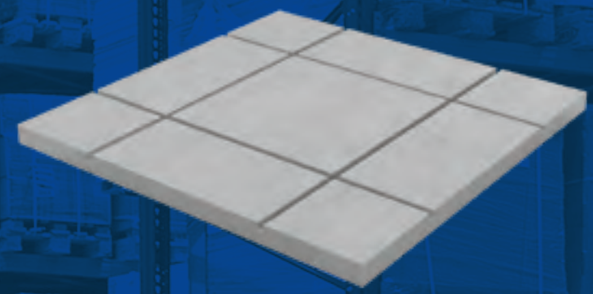
OUR EXPERTISE continues to grow, with over 35 years working with our partners to build better concrete floors.

Contact a member of our team to discuss the best solution for your project and how we can support you at every stage, through to completion.

TAB®Light

Slabs on grade with low loads

TAB®Light offers good crack control and durability with low fibre dosage rates.



TAB®Fibre

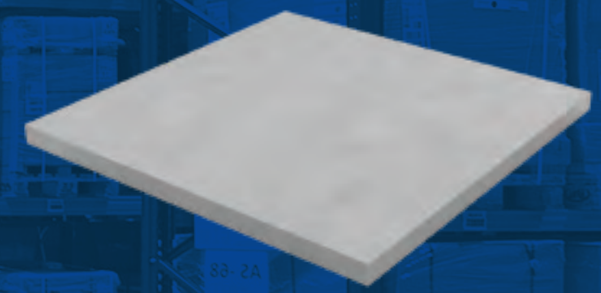
Slabs on grade with saw-cut joints

TAB®Fibre delivers a cost effective industrial slab for static and dynamic load bearing requirements and the impact of extreme weather conditions, if used externally.

TAB®Floor

Jointless slabs on grade

TAB®Floor is the ArcelorMittal Fibres solution for jointless floors allowing continuous slabs on grade without the need for contraction joints.

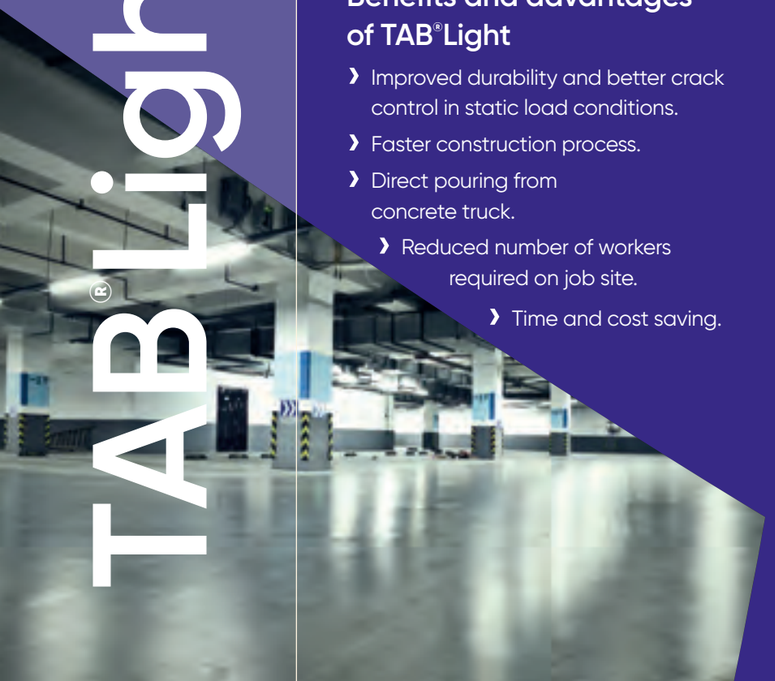


TAB®Structural

Jointless slabs on piles

TAB®Structural is the ArcelorMittal Fibres solution for pile supported industrial slabs where soil bearing capabilities for heavily loaded industrial floors are limited.

TAB®Light The solution for concrete floors that are submitted to lower loading conditions.



TAB®Light

Shop floors | Show rooms | Car show rooms | Car parks | Screeds | Commercial houses | Light floors

The solution for concrete floors that are submitted to lower loading conditions.

Solution description

TAB®Light improves the durability of the floor through better crack control.

Where shrinkage control and crack distribution are a consideration, and bearing capacity a minor issue (see "limits of application"), TAB®Light offers a longer lasting, high quality solution that is designed for purpose.

Even when static load conditions apply, TAB®Light improves the durability of the floor through better crack control.

Benefits and advantages of TAB®Light

- Improved durability and better crack control in static load conditions.
- Faster construction process.
- Direct pouring from concrete truck.
- Reduced number of workers required on job site.
- Time and cost saving.

TAB®Light in action

TAB®Light is recommended for slab thicknesses ranging from 130mm to 180mm.

A single layer of light welded mesh reinforcement can be replaced with a dosage rate of 10kg/m³ to 15kg/m³ of ArcelorMittal steel fibres.

Concrete grades suitable for TAB®Light are C20/25 or C25/30 according to EN 206:2013+A2:2021.

Limits of application

- For concrete floors submitted to uniform distribution loads less than, or equal to 10kN/m².
- For point loads (wheel loads from cars, small forklift trucks, small rack loads etc.) of 20kN maximum and a maximum contact pressure of 2 N/mm².
- Supporting soil should show a minimum modulus subgrade reaction of 0.05 N/mm³.
- For use in concrete floors with saw-cut joints. Not for jointless floors.
- Maximum spacing between two saw-cut joints cannot exceed 5m (maximum panels of 5 x 5m) for internal slabs, and 4m for external slabs.

FIBRES IN ACTION

IKEA Malacky, Slovakia grows by 33,000m²

The expansion of the production and storage facilities of the IKEA plant in the town of Malacky in western Slovakia is one of the most significant investments in the Záhoří region in recent years. Groundworks began in August 2022, construction itself started in January 2023 and the new facility was fully operational within 14 months. In total, the production and storage plant acquired an additional floor area of 33,000m², larger than the combined area of 5 football pitches.

ArcelorMittal worked with project partners to deliver an industrial flooring solution designed specifically for the long term challenges of round the clock dynamic and static loads.

Project title:
Construction and expansion of IKEA production and storage facilities, Malacky, Slovakia.

Client:
IKEA Malacky

General Contractor:
DYNAMIK HOLDING, a.s

Flooring Contractor:
SIPE

Area:
33,000m²

Dosage:
15kg/m³

Specification

Fibre type: TABIX 90/35
Dosage: 15kg/m³
Slab thickness: 180mm
Concrete class: C25/30
Surface area: 33,000m²

TAB®Fibre ArcelorMittal steel fibre reinforced concrete solution for slabs on grade with saw-cut joints.

TAB®Fibre

External or internal floors for residential | Sports | Leisure | Entertainment | Retail | Commercial | Distribution | Light industrial | Heavy industrial | Harbour | Cargo terminals

ArcelorMittal steel fibre reinforced concrete solution for slabs on grade with saw-cut joints.

Solution description

TAB®Fibre is a solution for steel fibre reinforced concrete slabs developed by ArcelorMittal Fibres and mainly finds its application in industrial floors that have to withstand light or heavy loads, either static or dynamic. Its main characteristic is the use of steel fibres that can replace traditional welded mesh.

TAB®Fibre exists as a fibres only solution, or hybrid solution, where a combination of steel fibres and mesh is used to ensure sufficient bearing level of the slab when heavy loads are acting. Due to the presence of steel fibres and saw-cut joints in the role of contraction joints, TAB®Fibre provides a high level of shrinkage control.

Benefits and advantages of TAB®Fibre

- Improved concrete ductility.
- Optimised slab thickness.
- Larger panel sizes.
- Better crack control and reduced surface cracking.
- Faster construction process.
- Direct pouring from concrete truck.
- Reduced number of workers required on job site.
- Time and cost saving.

TAB®Fibre in action

The function of different buildings varies greatly and it is important that the design is considered thoroughly and executed to the highest standards with your requirements in mind.

Our engineering team undertake a detailed study of all the parameters affecting the design of the structure. By doing this we can offer the optimal solution, without being unnecessarily over designed.

FIBRES IN ACTION

Expansion of the Terminal de Contenedores de Barcelona

Terminal de Contenedores de Barcelona is Spain's most important maritime operator of port terminals and it is the main maritime engineering and consultancy services provider for container movement and general cargo.

ArcelorMittal worked with project partners to deliver a quay side flooring solution that would meet the challenges of daily, year round movement of very high loads in a very aggressive and corrosive environment.

Project title:
Container Terminal, Ampliación Terminal de Contenedores de TCB, Muelle Sur, Fase 2, Puerto el Prat de Barcelona

Client:
Terminal de Contenedores de Barcelona (TCB)

Construction partners:
Copisa Constructora Pirenaica S.A

Location:
Port of Barcelona

Working environment:
Saltwater quayside

Area:
90,000m²

Fibre type:
HE+ 1/60

Dosage:
35kg/m³

Specification

Fibre type: HE+ 1/60
Dosage: 35kg/m³
Slab thickness: 25cm
Concrete class: C35/45
Surface area: 90,000m²

TAB®Floor ArcelorMittal steel fibre reinforced concrete solution for jointless slabs on grade.

TAB®Floor

Shopping centres | Production plants | Warehouses | Distribution depots | Car parks | Car show rooms | Hangars

ArcelorMittal steel fibre reinforced concrete solution for jointless slabs on grade.

Solution description

TAB®Floor is the solution for steel fibre reinforced concrete slabs developed by ArcelorMittal Fibres for jointless concrete floors. TAB®Floor is the best solution where the designer needs to consider eliminating the shrinkage of saw-cut joints. It is advisable to use TAB®Floor when heavy loads are applied to the slab, whether static or moving, but particularly when moving as saw-cut shrinkage joints can be avoided and therefore all the problems related to the durability and maintenance of these joints too. TAB®Floor ensures the effective control of concrete shrinkage and cracking patterns for better durability of the concrete floor.

Benefits and advantages of TAB®Floor

- Faster construction process.
- No requirement for mesh installation.
- Direct pouring from the concrete truck.
- Improved concrete ductility.
- Better crack control and reduced surface cracking.
- Saw-cut joints can be avoided.
- Reduced number of workers required on job site.
- Time and cost saving.

TAB®Floor in action

The function of different buildings varies enormously and it is important that the design is considered thoroughly and executed to the highest standards with your requirements in mind. Our engineering team undertake a detailed study of all the parameters affecting the design of the structure.

By doing this we can offer the optimal solution, without being unnecessarily over designed. ArcelorMittal Fibres team can provide all the support and advice from the first design steps to the realisation of the final project.

FIBRES IN ACTION

Building quickly and cost effectively for Amazon, Dobroviz

The 95,000m² Amazon distribution centre in Dobroviz, near Prague, called for an industrial flooring solution that would address the static and dynamic, high load bearing requirements of a busy warehouse and distribution facility.

The challenge of building quickly, cost effectively and safely, whilst meeting the client's performance criteria, resulted in the design of a TAB®Floor jointless solution.

Our dedicated team of ArcelorMittal Fibres engineers provided support on site, supervised the installation and operation of dosing equipment, advised on dosing rates, concrete mix optimisation, performance tests, and the pouring and finishing of the TAB®Floor solution.

The slab was successfully constructed within a 4 month period and delivered the highest quality outcome within the agreed time frame and budget.

Project title:
Amazon Distribution Centre

Investor:
Amazon

Developer:
Panattoni

General Contractor:
Kajima

Flooring Contractor:
Techfloor s.r.o.

Concrete class:
C25/30

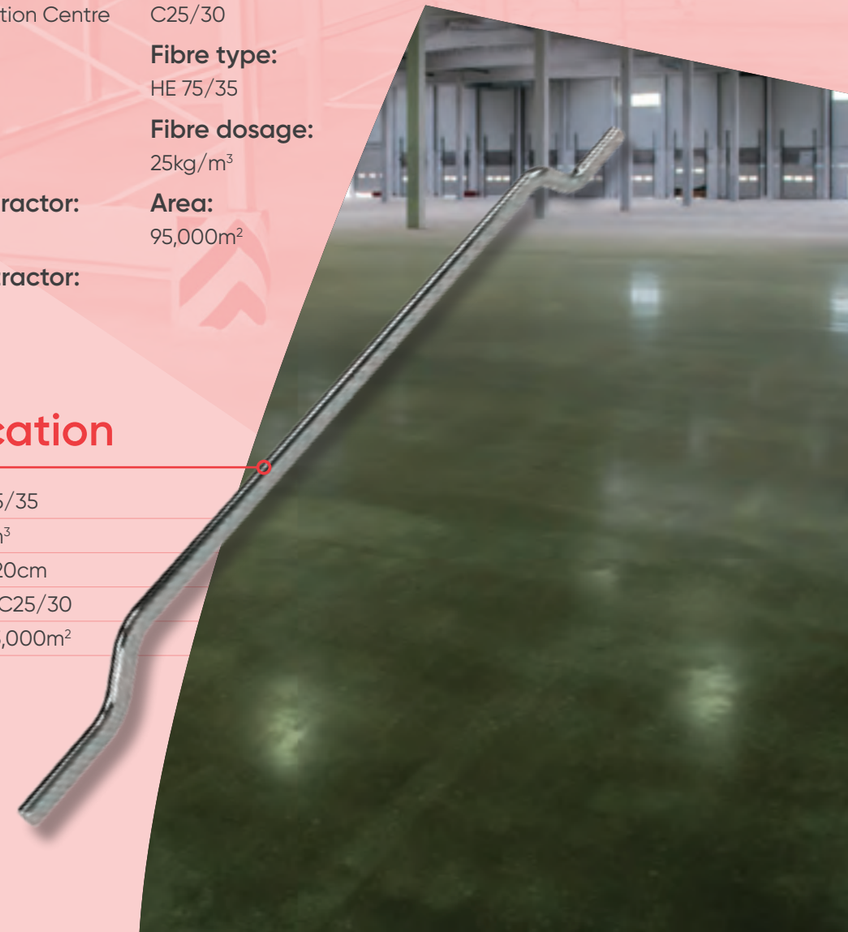
Fibre type:
HE 75/35

Fibre dosage:
25kg/m³

Area:
95,000m²

Specification

Fibre type: HE 75/35
Dosage: 25kg/m³
Slab thickness: 20cm
Concrete class: C25/30
Surface area: 95,000m²



TAB® Structural | ArcelorMittal steel fibre reinforced concrete solution for jointless slabs on piles.

TAB® Structural

Shopping centres | Production plants | Warehouses | Distribution depots | Car parks | Car show rooms | Hangars

ArcelorMittal steel fibre reinforced concrete solution for jointless slabs on piles.

Solution description

TAB® Structural is the solution for steel fibre reinforced concrete slabs on piles developed by ArcelorMittal Fibres. TAB® Structural finds its application when the soil bearing capacities are limited, or where supply of good uniform soils becomes too expensive for industrial applications. The piles act like supports to the slab and they can be executed as precast steel piles, or poured on jobsite.

TAB® Structural designs allow for the construction of the slab without any saw-cut joints and the possibility to avoid conventional mesh or traditional steel bar reinforcement. TAB® Structural is today one of the most efficient solutions for the design and construction of concrete slabs on piles bringing important technical and economical benefits to the final users.

Benefits and advantages of TAB® Structural

- A simple, efficient and fast way to construct a concrete slab on piles.
- No requirement for mesh installation.
- Reduced steel reinforcement without compromise to load bearing capacity.
- High punching shear resistance of the steel fibre reinforced concrete.
- Direct pouring from concrete truck.
- Better crack control and reduced surface cracking.
- Applications for slabs on piles with or without pile heads.
- Reduced number of workers required on job site.
- Time and cost saving.

TAB® Structural in action

The function of different buildings varies enormously and it is important that the design is considered thoroughly and executed to the highest standards with your requirements in mind.

Our engineering team undertake a detailed study of all the parameters affecting the design of the structure.

By doing this we can offer the optimal solution, without being unnecessarily over designed. Our team can provide all the support and advice from the first design steps to the realisation of the final project.

FIBRES IN ACTION

A steel fibre reinforced concrete slab on piles for Decathlon, Madrid

Decathlon has added another 30,500m² logistics centre to their facilities in Madrid. Built to meet Decathlon's operational needs, the facility at the Los Gavilanes logistic park connects with the major road networks that link Madrid with the rest of Spain.

Due to the low load bearing capacity of the soil and the generally adverse soil conditions, the ArcelorMittal Fibres team proposed a steel fibre reinforced slab on piles solution. Compared to traditional reinforcement methods, the steel fibre reinforced slab on piles solution reduced the construction time considerably, with savings on labour costs.

Project:
Decathlon Getafe (Madrid)

Location:
Polígono Industrial Los Gavilanes, Getafe (Madrid)

Contractor:
OCA Construcciones y Proyectos S.A.

Flooring Contractor:
Solei Building S.L.

Surface:
30,500m²

Slab thickness:
30cm

Concrete class:
C30/37

Dosage:
40kg/m³

Fibre type:
HE+ 1/60

Central pile grid:
4m x 4m

Edge pile grid:
4m x 2m; Prefabricated piles of 30cm and pile heads of 60cm x 60cm

Specification

Fibre type: HE+ 1/60
Dosage: 40kg/m³
Slab thickness: 30cm
Concrete strength: C30/37
Surface area: 30,500m²

ArcelorMittal Fibres at a glance.

The right advice. The right fibres. The right solution.

		High Tensile Strength	Very High Tensile Strength	Ultra High Tensile Strength	
		Standard 900 MPa to 1500 MPa	+ 1500 MPa to 1900 MPa	++ 1900 MPa to 2400 MPa	3+ > 2400 MPa
Solutions	**Intensity**				
TAB®Light	Low Duty				
TAB®Fibre	Low Duty				
	High Duty				
TAB®Floor	Low Duty				
	High Duty				
TAB®Structural	Low Duty				
	High Duty				

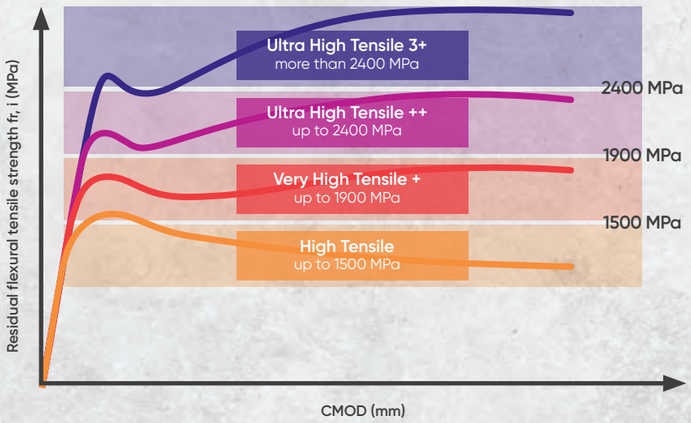
Our different levels of wire tensile strength are dedicated to different levels of expected performance of the concrete element reinforced with our steel fibres.

The High Tensile Strength steel fibres, made with a wire tensile strength ranging from 900 MPa to 1500 MPa (2 to 3 times the tensile strength of normal rebars), are proposed in low duty floors where the concrete performance and ductiliy requirements are corresponding to lower level of loadings.

The Very High Tensile Strength steel fibres (tensile strength between 1500 MPa and 1900 MPa) are used in industrial slabs on grade where the loadings are higher, and traffic of forklifts or trucks are more intense. They are also used in slabs on piles submitted to low loads. The recommended minimum concrete compressive strength class is C30/37.

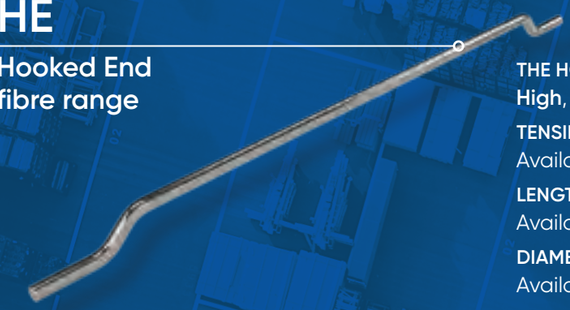
The Ultra High Tensile Strength steel fibres (tensile strength 1900 MPa to 2400 MPa) are recommended for industrial slabs on grade submitted to heavy loads and severe traffic conditions, and also for slabs on piles of any type.

These Ultra High Tensile steel fibres require a high compressive strength concrete to allow their potential to be activated fully (above C35/45 class for the ++ quality and above C50/60 for the 3+ quality).



HE

Hooked End fibre range



THE HOOKED END FIBRE RANGE IS AVAILABLE WITH:
High, Very High and **Ultra High Strength** wire qualities

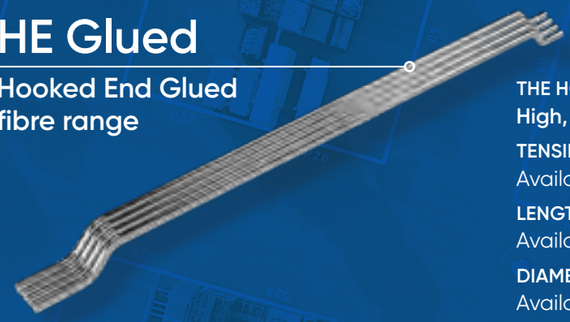
TENSILE STRENGTHS:
Available as **Standard**, **+**, **++** and **3+**

LENGTHS:
Available in **35mm** to **60mm**

DIAMETERS:
Available in **0.55** to **1.00mm**

HE Glued

Hooked End Glued fibre range



THE HOOKED END GLUED FIBRE RANGE IS AVAILABLE WITH:
High, Very High and **Ultra High Strength** wire qualities

TENSILE STRENGTHS:
Available as **Standard**, **+** and **++**

LENGTHS:
Available in **35mm** to **60mm**

DIAMETERS:
Available in **0.55** to **0.90mm**

TABIX

TABIX undulated fibre range

THE TABIX UNDULATED FIBRE RANGE IS AVAILABLE WITH:
High and **Very High Strength** wire qualities

TENSILE STRENGTHS:
Available as **Standard** and **+**

LENGTHS:
Available in **35mm** to **60mm**

DIAMETERS:
Available in **0.80mm** to **1.30mm**

Technical product data sheets for our full product range are available on our website **arcelormittal.com/steelfibres**

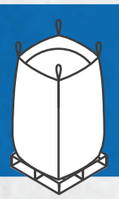
PACKAGING OPTIONS

Our steel fibres are available in a range of packaging options dependent on the fibre type and the volume of fibres required. **For full details please contact our support team:** fibresupport@arcelormittal.com

10kg, 20kg and 25kg boxes on pallets

2x500kg big bags/pallet
Nett weight 1000kg

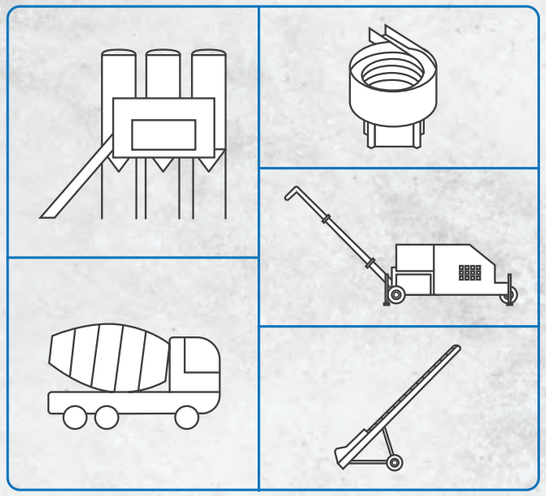
1000kg big bag/pallet
Nett weight 1000kg



DOSING AND MIXING

A wide range of solutions, with automatic dosing equipment, blast-machines and conveyor belts are available.

Our complimentary on-site support and technical advice service on mixing and dosing equipment, can help you decide on the right on-site dosing and mixing to suit your project.



TECHNICAL AND ENGINEERING SUPPORT

Our technical experts will advise and support you every step of the way.

We will ensure that your steel fibre reinforced flooring project meets all your requirements including material tracking and traceability, a reduced carbon footprint, unparalleled value and, of course, fully optimised steel fibre reinforced concrete solutions.

For further details please contact our support team:
fibresupport@arcelormittal.com

Why choose ArcelorMittal Fibres?

- Expert support
- Fibre performance
- Packaging options
- Reduced carbon footprint for your project
- Materials origin and traceability
- Comprehensive product range
- Guaranteed quality
- Your reliable project partner
- Vertically integrated business model

To discuss your flooring construction project, contact our technical support team.

Let's talk floors

The world is building on our expertise

ArcelorMittal Fibres operates internationally. We provide steel fibre reinforced concrete solutions for the concrete flooring industry and participate in some of the world's major flooring projects.

Let's talk floors

ArcelorMittal

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