



KRAMPE HAREX®

KNOW WHY.

THE FORCE IN CONSTRUCTION

FIBRES & FIBRE ENGINEERING



Concrete precast elements / Refractory concrete / Industrial floors /
Security technology / Tunnel construction / Traffic areas / Residential construction

KNOW WHY
WE'RE THE FORCE
IN CONSTRUCTION.

Because of

18,400 m²

of production space we're
as big as **3 soccer pitches.**

Because since

1982

we've been the market enabler.

Because with

13,000,000 km

of drawn wire per year we could
go **round the equator 325 times.**

Because of

11,500 MWh

per year, we use as much **green power**
as 4,200 German households.

Because with

54

contacts world-
wide we' never
far away.

Germany
Austria
Czech Republic

Argentina
Australia
Baltic States
Belgium
Brazil
Bosnia
Bulgaria
Chile
Denmark
France
Ireland
Israel
Italy
Canada
Colombia
Croatia
Macedonia
Mexico
Montenegro
Netherlands
Norway
Panama
Poland
Portugal
Sweden
Switzerland
Serbia
Slovakia
Slovenia
Spain
Turkey
Hungary
USA
United Arab Emirates
United Kingdom
Belarus

Because with

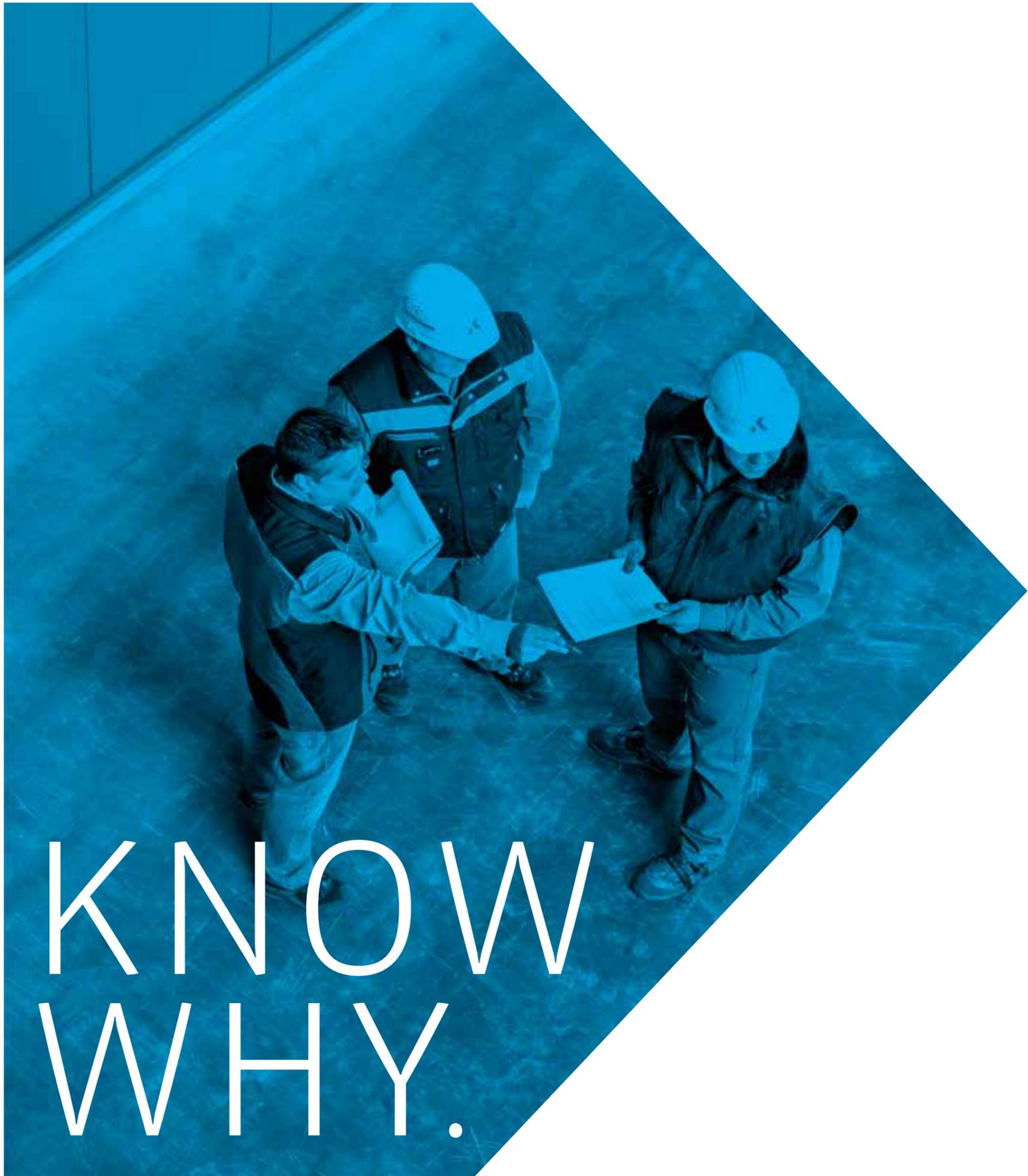
3

locations worldwide
we offer three times
more service.

Because with a total of

2.6 million m³

of KrampeHarex® fibre reinforced
concrete, we could fill **1.000 Olympic**
swimming pools.



KNOW
WHY.

KRAMPEHAREX® – KNOW WHY EVERY FIBRE IS A PLEDGE.

When it comes to fibres, KrampeHarex® is a global technology leader. Expertise you can rely on, continual specialization and above-average service, lay the foundation for satisfied customers in more than 50 different countries.

When we talk about fibre engineering, we're talking about our mission – to make your construction project safer. For 35 years now, we've been in the business of making concrete more stable and more resistant. Our know-why – the key to our successful handling of even the most complex projects – has convinced countless customers all over the globe. We'd like to show you today how KrampeHarex® puts fibre forces to efficient use.

Together, we can come up with the optimal fibre solution to meet your needs. We've already developed solutions for the following applications:

- Concrete precast elements
- Refractory concrete
- Industrial floors
- Security technology
- Tunnel construction
- Traffic areas
- Residential construction

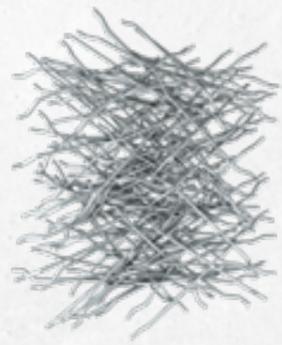
DAS KRAMPEHAREX® ENVIRONMENTAL PLEDGE:

-  100% green power in all processes
-  Highly efficient intersectional technologies
-  Eco-friendly production and disposal

KNOW WHY NOT ALL FIBRES ARE ALIKE.

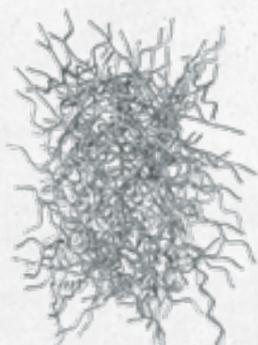
WIRE FIBRES

Hooked ends

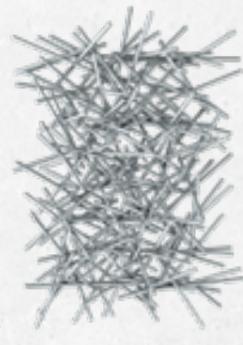


For concrete precast elements, refractory concrete, industrial floors, security technology, tunnel construction, traffic areas and residential construction

Corrugated steel fibres

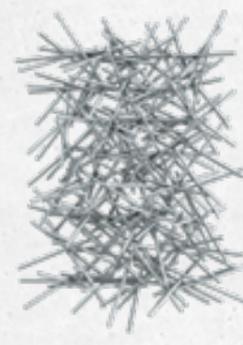


Straight steel fibres



For ultra high performance concrete, security technology and ready-mixed mortar

Microfibres



For ultra high performance concrete, security technology and ready-mixed mortar

SLIT SHEET FIBRES



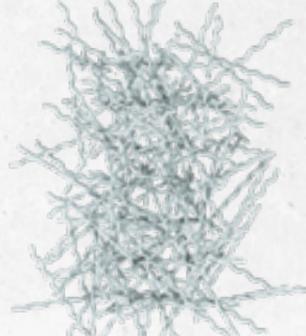
For concrete screeds

SYNTHETIC MICROFIBRES



For passive fire protection, screeds and reducing shrinkage

SYNTHETIC MACROFIBRES



For outside and agricultural applications, precast elements and sprayed concrete

GLASS FIBRES



For floors, screeds, precast elements and reducing shrinkage

GOOD REASONS TO CHOOSE OUR FIBRES:

+ HIGHER DURABILITY

Better wear and impact protection for your project.

+ GREATER CONSTRUCTION AREAS

Greater distance between joints of up to 2,000 m².

+ FASTER CONSTRUCTION PROGRESS

Time savings due to considerable reduction in construction procedures.

+ BETTER SHRINKAGE BEHAVIOUR

Higher surface quality due to the reduction of contraction stress.

+ COMBINED SOLUTIONS

The ideal synergy of fibre and steel rebar reinforcement.

+ LOWER MATERIAL COSTS

A blinding layer and steel mesh reinforcement are no longer necessary.

+ IMPROVED MATERIAL QUALITIES

Better ductile material behaviour in all directions.

KNOW WHY GROWTH BUILDS ON US.

Security Technology

For bank vaults, ATM's,
defence applications

Tunnel Construction

For sprayed concrete, tunnel
segment lining, for passive
fire protection in precast and
insitu concrete

Refractory Concrete

In the petrochemical, iron,
steel and cement industries
and ceramic furnaces

Residential Construction

For strip foundations,
foundation slabs and
precast cladding panels

Industrial Floors

For warehouses,
production halls, logistic
centres and clad rack
projects

Traffic Areas

For roundabouts, bus stops,
parking and heavy traffic
areas

Concrete Precast Elements

For pipes, shaft rings, TLS,
prestressed girders

KNOW WHY FIBRE FORCES WORK.

Industrial floors, residential building, tunnel construction or precast elements and much more – the fields of application of KrampeHarex® fibres are multifaceted and the savings in time and costs are considerable. And for good reason.

After decades of conventional reinforced concrete as the status quo in industrial floor construction, fibre reinforced concrete has created a new approach which is generally more efficient. The homogeneous steel fibre concrete made with KrampeHarex® steel fibres is applied directly from the truck mixer. There is no need for extensive reinforcement work or installation of a blinding layer. This saves time by simplifying the procedure: much thinner slabs are possible because no concrete cover is required and even concrete sections of up to 2,000 m² are not a problem.

Are extreme concentrated loads likely along with stringent requirements regarding the maximum crack width? If so, KrampeHarex® combined reinforcement (fibres and rebar) may make sense. Contact us. We know why a particular solution is just right for you.

Economic Solution

- + Surface of the concrete is protected from possible damage
- + Lower maintenance costs thanks to reduced cracking
- + High fire resistance when synthetic fibre concrete is used
- + Faster completion due to time and cost-saving processes

Tunnel Construction

Tunnel Chain S35 Bruck Mixnitz, Austria

Structure: Tunnel
Fibre type: Sprayed concrete DE 30/060 N
Portal area DE 50/080 M
Inner shell PM 3/15

Tunnel chain: Kaltenbach 1,165 m
Pernegg 2,800 m
Mixnitz 680 m

Industrial Floors

BMW Parts Depot Gündelkofen, Germany

Building component: Floor slab
Concrete: C 30/37
Fibre type: DE 60/0.9 N

Performance class: L 1.2/0.9
Surface area: 100,000 m²

FibresIndustrial Floors

- + Low maintenance costs thanks to increased mechanical resistance
- + Improved post-cracking behaviour in all directions due to the addition of fibres
- + Cost savings in labour, equipment and time
- + Higher durability due to increased resistance to wear and impact

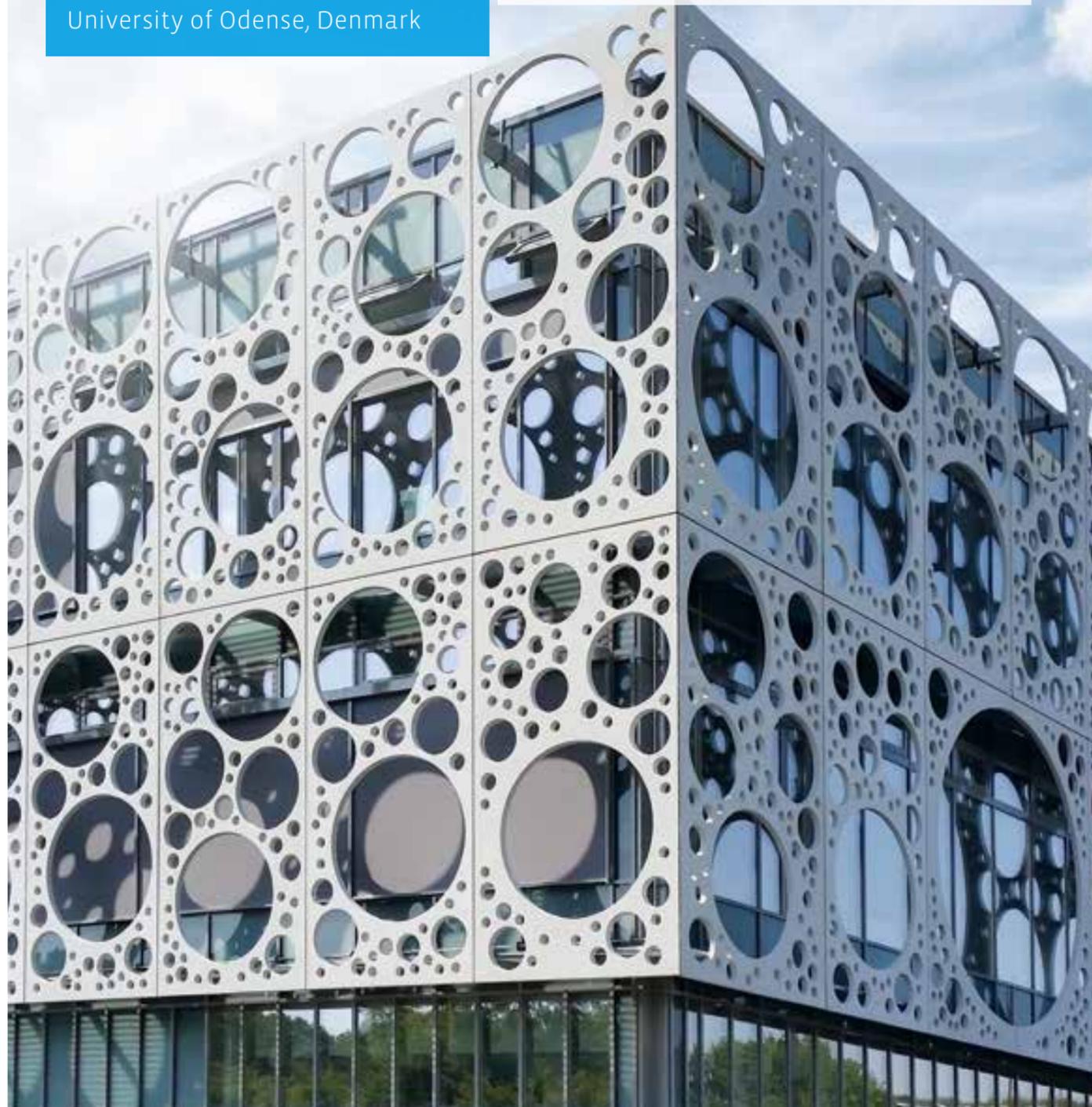
Ultra High Compressive Concrete

Facade Elements

University of Odense, Denmark

Building component: Prefabricated facade element
Concrete: C 170/200

Fibre type: DG 12.5/0.3
Dosing rate: 140 kg/m³
Total volume: 1,400 m³



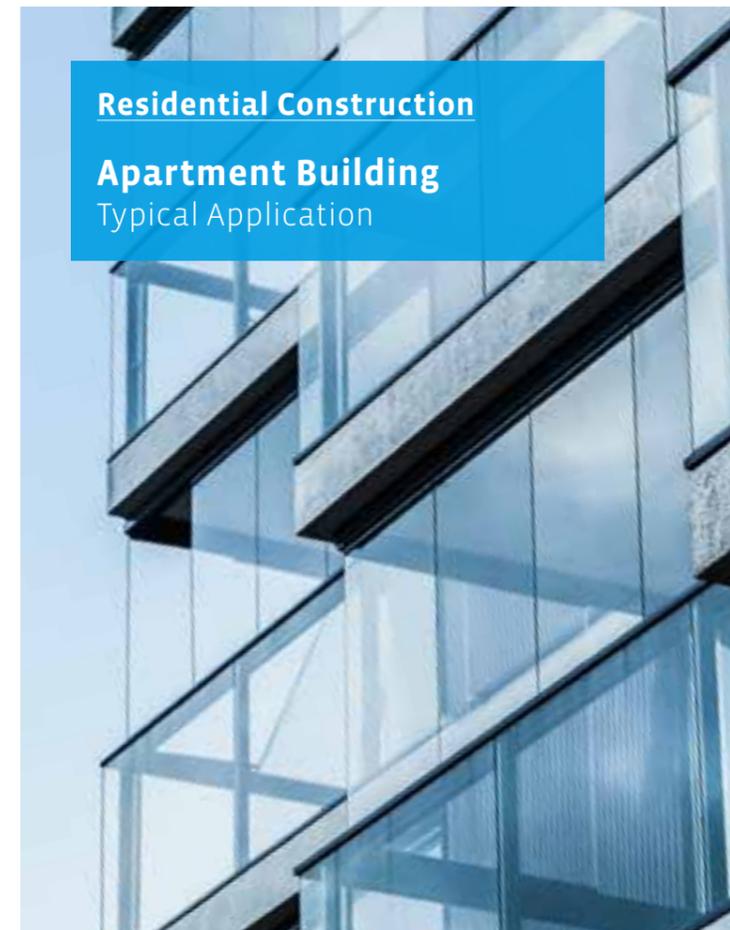
FibresUHPC

- + Increased concrete rigidity, even when cracked
- + High-density, wear-resistant surfaces
- + Lower dead load because the components are exceptionally thin
- + 20 times better resistance and durability

Residential Construction

Apartment Building

Typical Application



FibresResidential Construction

- + Reducing the crack width of steel fibre reinforced concrete
- + Increased material elasticity and higher resistance against mechanical damage
- + Homogenic crack distribution in to the micro crack level
- + Less reinforcement and significantly faster construction progress

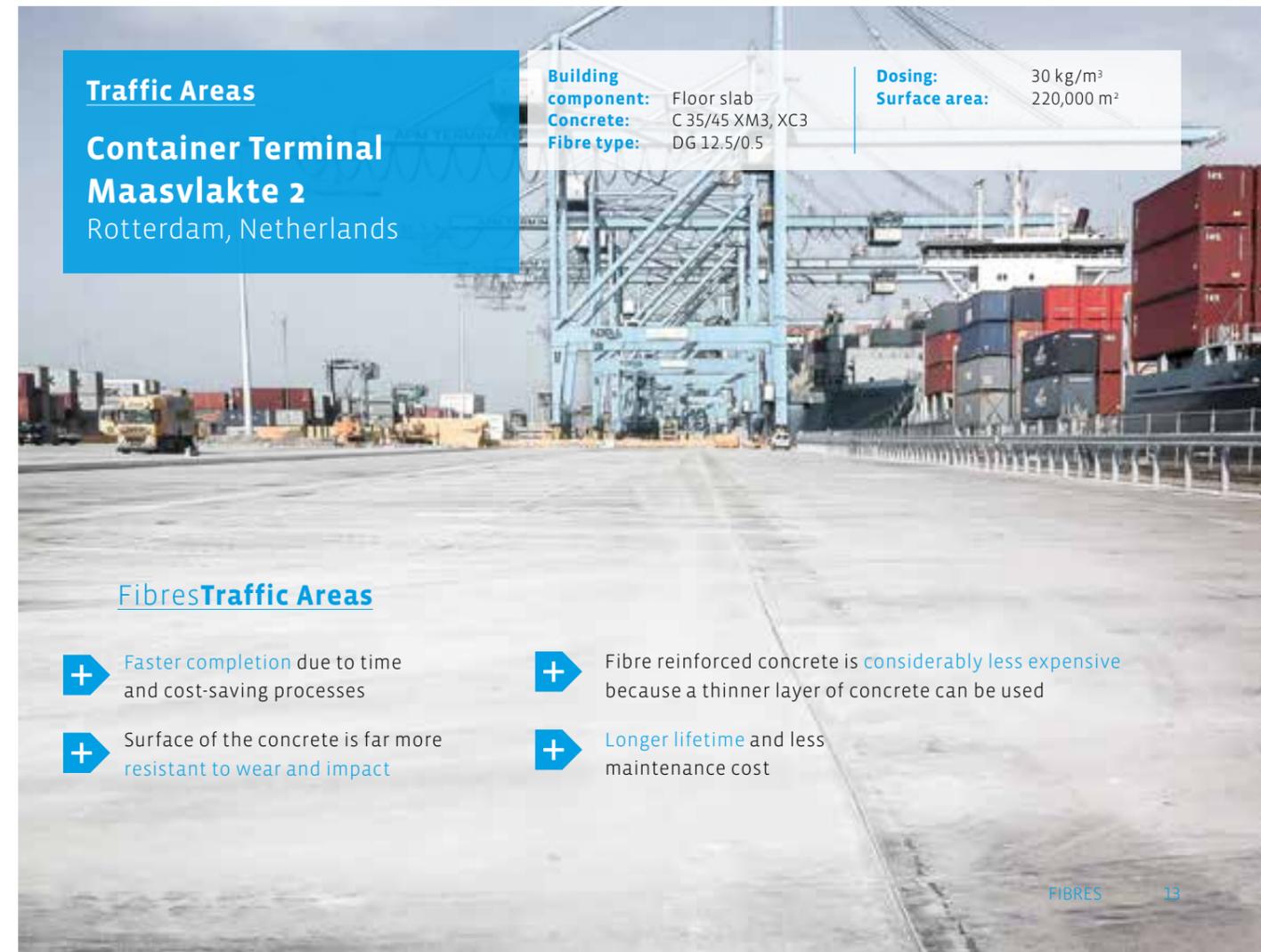
Traffic Areas

Container Terminal Maasvlakte 2

Rotterdam, Netherlands

Building component: Floor slab
Concrete: C 35/45 XM3, XC3
Fibre type: DG 12.5/0.5

Dosing: 30 kg/m³
Surface area: 220,000 m²

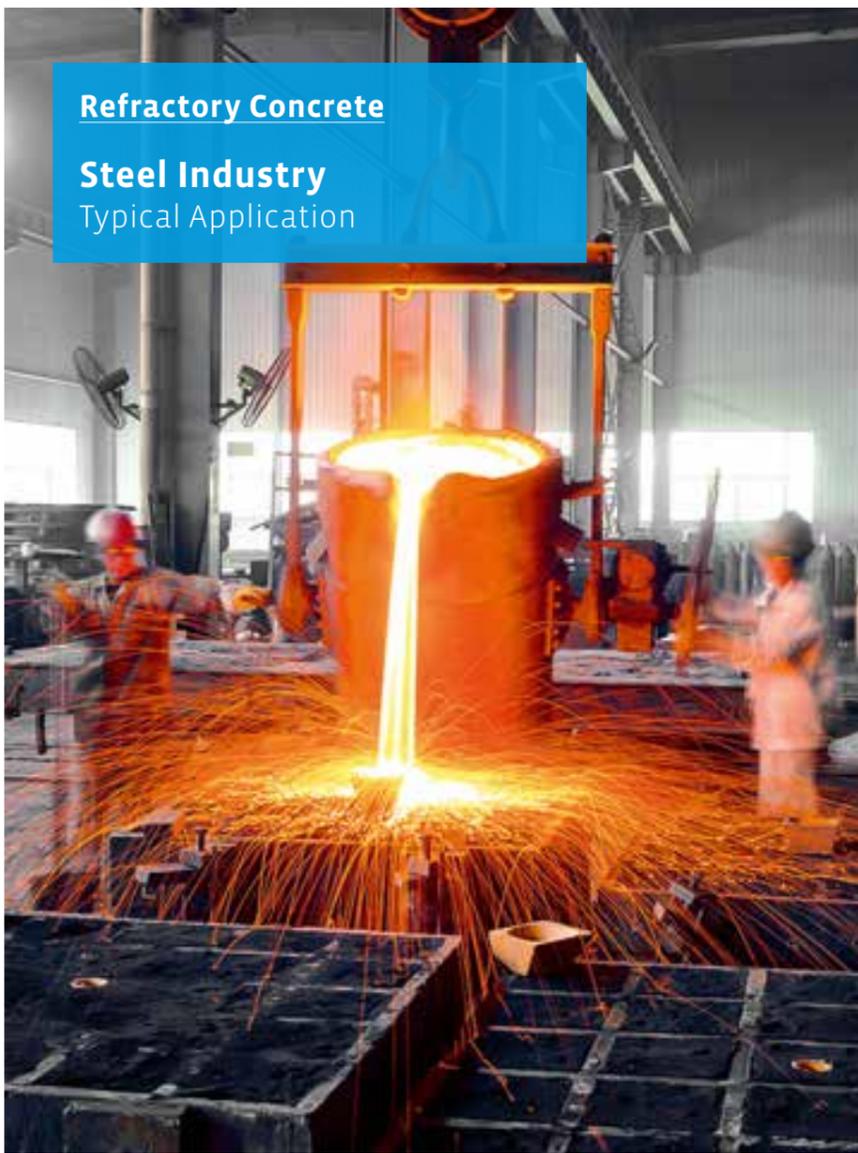


FibresTraffic Areas

- + Faster completion due to time and cost-saving processes
- + Surface of the concrete is far more resistant to wear and impact
- + Fibre reinforced concrete is considerably less expensive because a thinner layer of concrete can be used
- + Longer lifetime and less maintenance cost

Refractory Concrete

Steel Industry Typical Application



FibresRefractory Concrete

- + Greatly improved durability for use in the petrochemical, iron and steel industries
- + Less high-temperature corrosion under extreme heat conditions
- + Optimal homogeneity because the concrete is less prone to chipping
- + Significantly longer service life for lances

Security Technology

Bank Vaults Typical Application



FibresSecurity Technology

- + Effective security for bank vaults, ATMs and defence applications
- + Optimal resistance for blast and ballistic impacts due to higher ductility
- + Better protection against high-temperature corrosion
- + Best protection due to optimal material utilisation

Concrete Precast Elements

Ikea Central Warehouse Dortmund, Germany

Building component:	Prestressed girders, 22 m	Fibre type:	DE60/0.75M
Concrete:	C 45/55	Performance class:	L 2.4/2.1
		Total volume:	820 pcs.



FibresPrecast Elements

- + Significant lower production and material cost by reducing element thickness
- + Higher durability due to increased impact and tensile splitting strength
- + Reduced outlay for shear and punching shear reinforcement
- + Component is better protected against chipping

KNOW WHY WE ACCOMPANY YOU WITH EVERY FIBRE. THAT'S SERVICE+

Fibres are our core area of expertise at KrampeHarex®. This is because we know more than simply how it works; we also know why it works. Our customers discover what this means in practice when we take on challenges that others shy away from. As a technology leader, we share our knowledge, discuss questions, resolve problems and develop new ideas together with you in direct interaction. We search for solutions until we find the one that meets your requirements perfectly. KrampeHarex® Service+ means static calculations, wet concrete inspections or the selection of a suitable fibre type – we are at your side the whole time, from the planning phase through to completion.

Service+ solutions for your project:

- Engineering support.**
- Construction assistance.**
- Special solutions.**
- Rental service for dosing devices.**
- Quality system.**



Rental service for dosing devices.

You can purchase a dosing device – or rent one from us. Conveyor belts, high-performance air blowers or fully automatic dosing systems: we offer the right dosing technology for every fibre type. You tell us where you need it and we'll supply it.



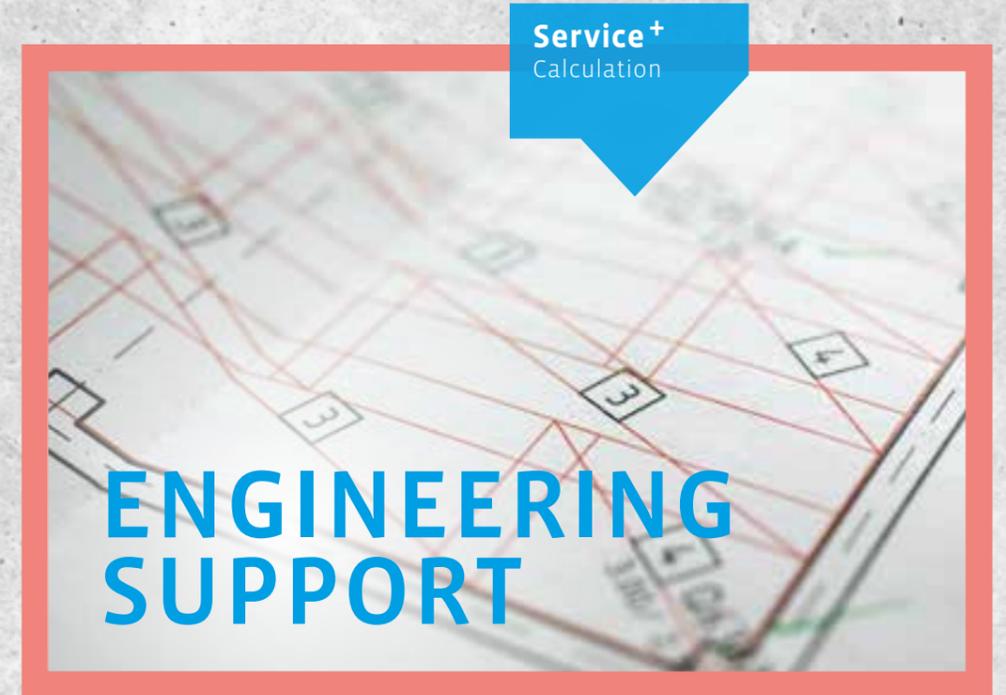
ON-SITE CONSULTATION

Construction assistance.

From process control to the concrete composition – we provide assistance from A to Z, accompanying you all the way through your construction project from beginning to end. Not simply in theory but always in direct interaction with you, wherever you happen to be in more than 50 different countries.

Engineering Support.

In the field of engineering, we work closely together with our strong partner: **Schulz Concrete Engineering GmbH**. The range of services include the design and planning of steel fibre reinforced concrete and/or combined solutions with fibre and rebar, as well as concrete testing, construction supervision and floor flatness measurements. Our service is based on the latest standards and guidelines.



Service+ Custom-made



Support for special solutions.

Our planning doesn't balk at revolutionary construction projects that set new standards. Quite the opposite: for us, every new challenge is the best possible inspiration to continue to outdo ourselves and come up with exactly the solution you've been looking for.

»Why KrampeHarex®? Because for decades now, we've been taking our customers' projects as a yardstick of fibre quality.«

Jochen Gerding, Quality Manager



OUR FIBRES – YOUR BENEFITS.

FIBRES

APPLICATIONS

FIBRE TYPE

LENGTH (mm)

CROSS SECTION (mm)

MATERIAL SPECIFICATIONS

WIRE FIBRES



- > Concrete precast elements
- > Refractory concrete
- > Industrial floors
- > Security technology
- > Sprayed concrete
- > Traffic areas
- > Residential construction

Hooked ends



25/30/35/45/50/60

∅ 0.5–1.2

Normal
tensile strength

Medium
tensile strength

High
tensile strength

Ultra-high
tensile strength

Stainless
steel

E 304
E 314
E 330
E 430
E 446

Corrugated steel fibres



20–60

∅ 0.5–1.2

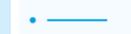
Straight steel fibres



6–30

∅ 0.3–0.5

Microfibres



6–15

∅ 0.15–0.2

High tensile strength

-

SLIT SHEET FIBRES



- > Screeds
- > Concrete maintenance

Hooked ends



20

0.65–1.7 x 0.5–0.7

Normal tensile strength

-

SYNTHETIC MICROFIBRES



- > Screeds
- > Fire protection
- > Shrinkage reduction

Multifilament type



3/6/12/18

15/18/32/42 µm

-

-

Fibrillated type



6/18

50/200 µm

-

-

Fine fibrillated type



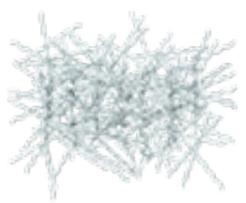
6/12

50/200; 60/200 µm

-

-

SYNTHETIC MACROFIBRES



- > Concrete agricultural slabs
- > Outdoor surfaces
- > Precast elements
- > Sprayed concrete

Macrofibres



48/54

700–1100 µm

-

-

GLASS FIBRES



- > Floors
- > Precast elements
- > Screeds
- > Shrinkage reduction

Glass fibres



12/18

14 µm

-

AR-glass fibres

-

E-glass fibres

-

EC-glass fibres



KRAMPE HAREX®

KNOW WHY.

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