KRAMPE HAREX®

KNOW WHY.

Reference | UHPC with fibres

FACADE UNIVERSITY ODENSE

Odense | Denmark

Master class architecture with UHPC.

PROJECT INFORMATION

Project	Facade architecture University of Odense
Location	Odense, Denmark
Application	UHPC with fibres
Component	Precast concrete elements
Construction time	2013 - 2015
Requirements	High rigidity, high durability
Concrete	UHPC

Fibretype	DG 12,5/0.3 E304
Dosage	140 kg/m³
Total items	292 facade elements

SPECIAL FEATURE

The curtain wall of the technical faculty consists of seven CRC panels made of a special white cement with fiber reinforcement, giving the building a dynamic appearance. At the same time, the curtain wall protects against 50% of solar radiation and provides natural ventilation and glare protection. 65% of the facade consists of holes.

KrampeHarex GmbH & Co. KG **Strahlmittel und Fasern** · Abrasives and fibres **Anschrift** Pferdekamp 6–8 · D-59075 Hamm
Fon +49 (0)2381 - 977 977 **Fax** +49 (0)2381 - 977 955 **Internet** www.krampeharex.com **E-Mail** info@krampeharex.com

KRAMPE HAREX®

KNOW WHY.

Reference | Facade University Odense

ARCHITECTURAL MASTERPIECES WITH UHPC
THE CHOICE OF FIBRES IS CRUCIAL

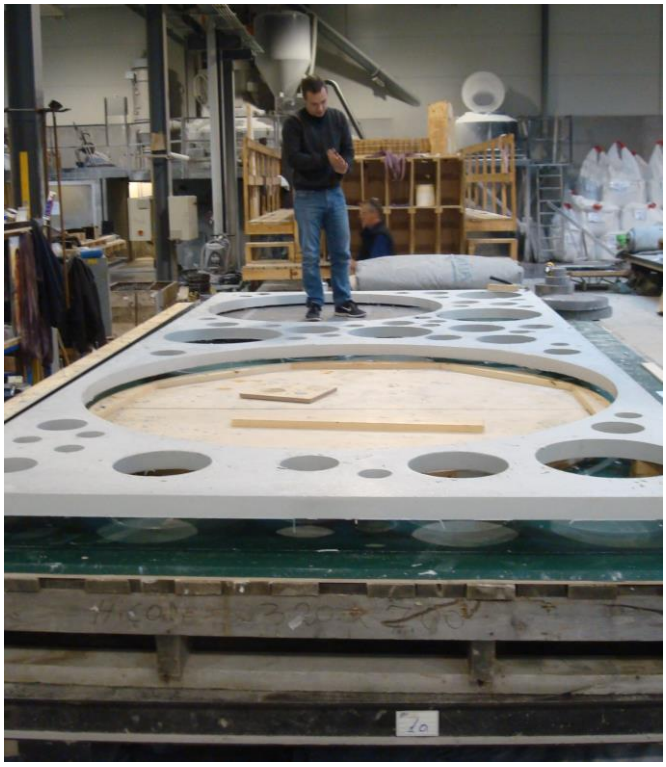
In order to be able to produce extremely slender or highly perforated structures such as the facade elements of the Southern Danish University in Odense, the UHPC concrete must ensure high stiffness combined with ductility. This is achieved by adding steel microfibers. The use of stainless steel fibers enables durable highly aesthetic surfaces that can withstand stressful environmental conditions. In addition, polypropylene fibers can be used in UHPC components to increase the fire resistance of the ultra-high strength concrete.

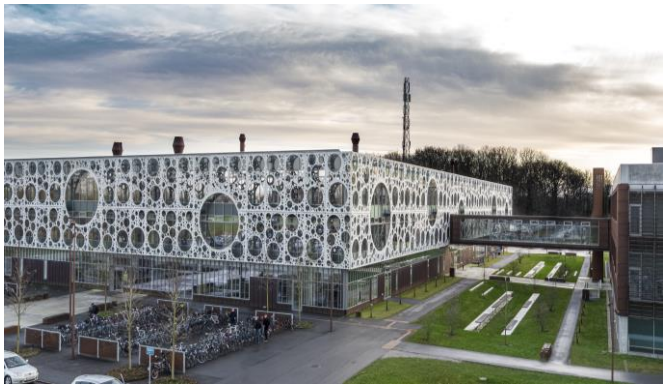
A whole series of parameters determine the material properties of UHPC: aggregate, binder and their packing density, fiber geometry, fiber content and steel grade. As a rule, steel fibers are the most economical solution for HPC and UHPC projects. However, depending on the requirements of the UHPC components, a mixture of different fiber types and, in many cases, a combination reinforcement of prestressed and / or slack reinforcement may also be suitable.

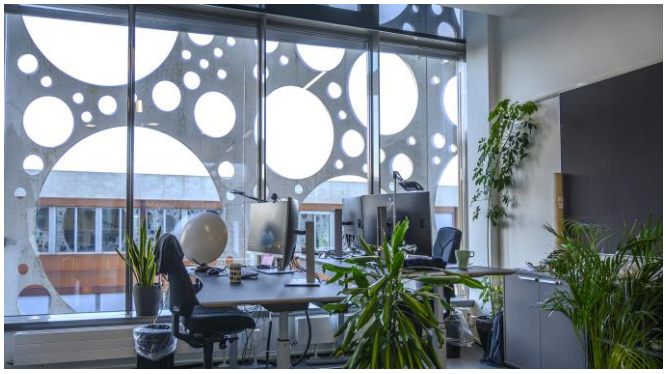
Thanks to the extreme rigidity and high ductility of fiber-reinforced concrete, exceptionally thin UHPC components with an extremely low dead weight can be realized. With the appropriate fibers or fiber mixtures, you can also achieve highly dense and wear-resistant surfaces, up to 20 times the resistance to shear deformations and to short-term dynamic extraordinary impacts such as explosion compared to conventional concrete, as well as increased stiffness of the concrete even in the cracked state. The combination of these advantages makes architectural masterpieces possible and ensures the safety and durability of new and existing buildings.

292

Facade elements







Photos: all copyrights Hi-Con A/S
https://www.hi-con.com/

KrampeHarex GmbH & Co. KG **Strahlmittel und Fasern** · Abrasives and fibres **Anschrift** Pferdekamp 6–8 · D-59075 Hamm
Fon +49 (0)2381 - 977 977 **Fax** +49 (0)2381 - 977 955 **Internet** www.krampeharex.com **E-Mail** info@krampeharex.com

KRAMPE HAREX®

KNOW WHY.

Referenz | Facade University Odense

"KrampeHarex has been accompanying developments in ultra-high-strength concrete with its fibres for more than 30 years. Feel free to contact us!"

Dipl.-Ing. FH Stephan Müller
Sales Manager International,
KrampeHarex

THE PERFECT BASIS FOR **UHPC CONSTRUCTIONS**

Our portfolio of fiber types, fiber geometries and material specifications offers ideal conditions for the high requirements in the field of high-strength and ultra-high-strength concretes. We advise you on the selection of suitable fibres or fibre blends. If desired, we can also undertake the hardened concrete testing of the selected material in cooperation with our engineering partner SCE. Beyond the desired concrete properties, we thus guarantee a reliable project result.

Thanks to its outstanding material properties, ultra-high performance concrete (UHPC) enables load-bearing structures and architectural works of art that far surpass conventional concrete construction in terms of lightness and filigree. Structures realized with UHPC can be so fascinating in their form that one might mistake what one sees for an optical illusion. The exceptionally thin, yet extremely strong UHPC components also set new standards in terms of durability. Reinforced with special microsteel fibers, the concrete can be the basis for extremely perforated facade elements, wide-spanning roof structures or column-free filigree bridges. The material also offers many possibilities for refurbishing and reinforcing damaged concrete and steel components. For example, ultra-high-strength concrete roadways help to increase the service life of our bridges - while shortening planning and construction times.

You can find more interesting projects and current topics related to fiber concrete on our website.
Visit: **krampeharex.com/en/blog**

OTHER **PROJECTS**

CATARINA BRIDGE
Leiden / Netherlands

Application: UHPC with fibres
Length: 36 m
Fibretype: DG 12.5/0.3 E304

ROADWAY REHABILITATION A61
Kerpen / Germany

Application: Traffic areas
Fibre content: 40 kg/m³
Fibretype: DE 50/0.8 N

BRIDGE RENOVATION A9
Riddes / Switzerland

Application: UHPC with fibres
Volume: 400 t
Fibretype: DM 14/0.175

KrampeHarex GmbH & Co. KG **Strahlmittel und Fasern** · Abrasives and fibres **Anschrift** Pferdekamp 6–8 · D-59075 Hamm
Fon +49 (0)2381 - 977 977 **Fax** +49 (0)2381 - 977 955 **Internet** www.krampeharex.com **E-Mail** info@krampeharex.com