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CRC[®] JointCast



*Hi*CON

HIGH PERFORMANCE CONCRETE



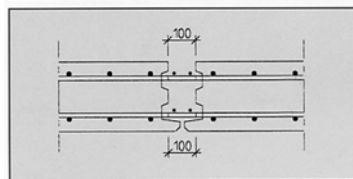
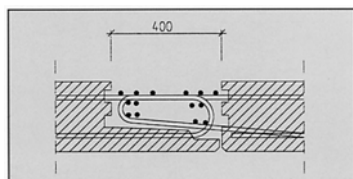
Even with lap lengths of 80 mm for ø12 reinforcing bars, the joint will be the strongest part of the element.

CRC® JOINTCAST

CRC® JointCast is a steel fiber reinforced mortar with high strength and durability. It is particularly applicable for in-situ cast joints between elements of conventional concrete or CRC® where there are high demands to toughness and strength, or for effective anchoring of steel reinforcement. CRC® JointCast is delivered as a dry mortar, where only water is added on site.

CRC® JointCast is a special version of CRC® concrete. CRC® is an abbreviation for Compact Reinforced Composite, a type of concrete developed by Aalborg Portland in 1986. Since 1995, CRC® JointCast has been used for a wide range of European construction projects.

COMPACT REINFORCED COMPOSITE JOINTCAST



TYPICAL APPLICATIONS

There are numerous ways to utilize the great strength and durability of CRC® JointCast, for instance:

- Bridge joints, where the use of elements combined with CRC® JointCast ensure a very fast execution period. Often the bridge can be used only a few days after casting.
- Repair work on bridges or extensions – such as replacement of edge beams or addition of an extra lane to the bridge.
- Possibility of splitting large units into smaller parts and then connect them on site, where transportation of the complete unit would be difficult and costly.
- Enables precast production in smaller elements instead of in-situ casting without compromising the monolithic function and appearance.
- Simplify repair work
- Simplify complex joints



Transport of large components is made easier with small joints - 2 m³ CRC® JointCast for 20,000 m².



Complicated joints - here 2 beams are joined together in the same spot as a column has to transfer load from a wall.

Photos upper row
CRC® JointCast makes it possible to produce small, simple and strong joints. Top left illustrates a joint made of conventional concrete compared to a stronger corresponding joint with CRC® JointCast. The test elements are shown to the right and all tests - including fatigue tests - demonstrated that failure occurs outside the joint.



Samples for testing of pullout strength.

DOCUMENTATION

Numerous studies of the excellent bond properties, which can be achieved with CRC® JointCast, have been conducted in many different countries - and quite simply, the high strength and the steel fibers help to improve the bond properties of the concrete. This means that the reinforcement fails before it is pulled out and not only yielding is achieved.

Among others, the testing of different joint types has been carried out at Building Research Establishment in England.

COMPACT REINFORCED COMPOSITE JOINTCAST



MIXING AND CASTING

CRC® JointCast is delivered on site as bags of dry-mortar and bags of steel fibres, where the typical ratio is 5 bags of dry-mortar to one bag of fibres. The mixing is done with a pan mixer and apart from the bags of material, only water has to be added on site. To ensure a good dispersion of the fibres it is necessary to mix for a relatively long time - 7 to 8 minutes.

Strength development is very rapid in CRC® JointCast and at temperatures of 20° C a strength of 70-90 MPa can be achieved within 1 day. This means that joints quickly develop sufficient robustness to support loading.

Conventional equipment such as pan mixers and poker vibrators are used for connections made with CRC® JointCast. With an optimal design even complicated joints can be cast with a minimum use of material and still achieving the appearance and function of a monolithic structure.



Mixing and casting of joints between the elements.



Individual elements are joined into a complete stairway – which appears as cast in one operation.

We have many years of experience with high performance concrete - including CRC[®] and CRC[®] JointCast - and we gladly bring this knowledge to use in new products and cooperation on various development challenges. If you wish to know more about technical specifications and how CRC[®] JointCast can contribute to durable and aesthetic solutions, please feel free to contact us.



Combined stairway and ramp in front of Roskilde town hall, Denmark, is an example of a building made with elements that otherwise would have been casted in-situ. With CRC[®] JointCast, the element solution resulted in a faster and more cost-effective construction and a much better quality.

CRC[®] JointCast is marketed and sold by CRC[®] Technology ApS - a Hi-Con A/S subsidiary.

HiCON

HIGH PERFORMANCE CONCRETE

HI-CON A/S
INFO@HI-CON.DK

WWW.HI-CON.DK

CRC[®] Technology

CRC TECHNOLOGY APS
INFO@CRC-TECH.DK

WWW.CRC-TECH.DK

HJALLERUP ERHVERVSPARK 1 - DK-9320 HJALLERUP
TEL +45 9828 3720 - FAX +45 9828 3710