

Point Foundations Warehouse

Sonderborg, Denmark

For the construction of a warehouse and DIY shop in Sonderborg a big amount of point foundations was needed to support the concrete pillars. Fibre Reinforced Concrete was offered as a solution to reduce the construction time.



Contractor
SIB (DK)

Product
DURUS S500

Function
DURUS Macro Synthetic fibres to replace steel mesh

Volume:
4 kg/m³

Challenge

For the construction of the warehouse and DIY shop a total of 48 pillars were needed. The estimated time to install the point foundations with steelcages made out of 12mm rebar was 25 days.

The point foundations are 1,7x1,7x0,7m and will provide the structure's stability from the ground. It will distribute the weight of the structure over a larger area as to avoid overloading of the soil beneath.

Solution

- After consultation with the Client and Installation Contractor, PP Nordica were provided with the design criteria and loading information to enable a Professionally Indemnified solution to be provided by one of their Consulting Engineers.
- The Design Engineer was able to replace the steel cage with 4kg/m³ of Durus S500 and to speed up installation time a Self Compacting Concrete was used. For steel cages vibrating is always necessary to improve the bond between concrete and steel rebar.



With Durus S500 fibres already contained in the concrete when it is delivered to site, many point foundations can be poured in one time, which greatly reduces construction time.



Apart from the point foundation, line foundations were poured with the same dosage.

Benefits of the solution

- Replacing the conventional steel cage with 12mm rebar with DURUS Synthetic Macro Fibre has resulted in a reduced construction time of 25 days and an easier installation along with a significant cost saving compared to the original steel cage specification.
- Any risk of reduced service life due to the corrosion of conventional steel mesh reinforcement has been removed.
- The significant Health & Safety hazards associated with steel mesh fixing have been eliminated during installation.
- By eliminating all steel cages in the foundations, the risk for the cage to move during pouring and jeopardising the structural performance, is also eliminated.

Result

- The contractor saved 25 full days of steel fixing.
- Service life has been maintained by eliminating the risk of surface spalling resulting from steel corrosion. The risk of damage to mobile plant tyres from exposed steel mesh is also no longer a potential issue.
- The use of DURUS Synthetic Macro Fibre has resulted in an approximate saving of embedded CO₂ of 56% when compared to conventional steel mesh reinforcement construction methods.

Products used: DURUS EasyFinish



DURUS S500

Replaces conventional steel fabric mesh reinforcement in casted concrete