

FRCM Strengthening Concrete silos, Knauf Plant. Tunisia

Sika® Carbodur®-300 Grid/ Sika Monotop®-3200 Grid/
Sika Monotop®-412 N/ SikaTop®-121 Surfaçage

Sika@Work



BUILDING TRUST



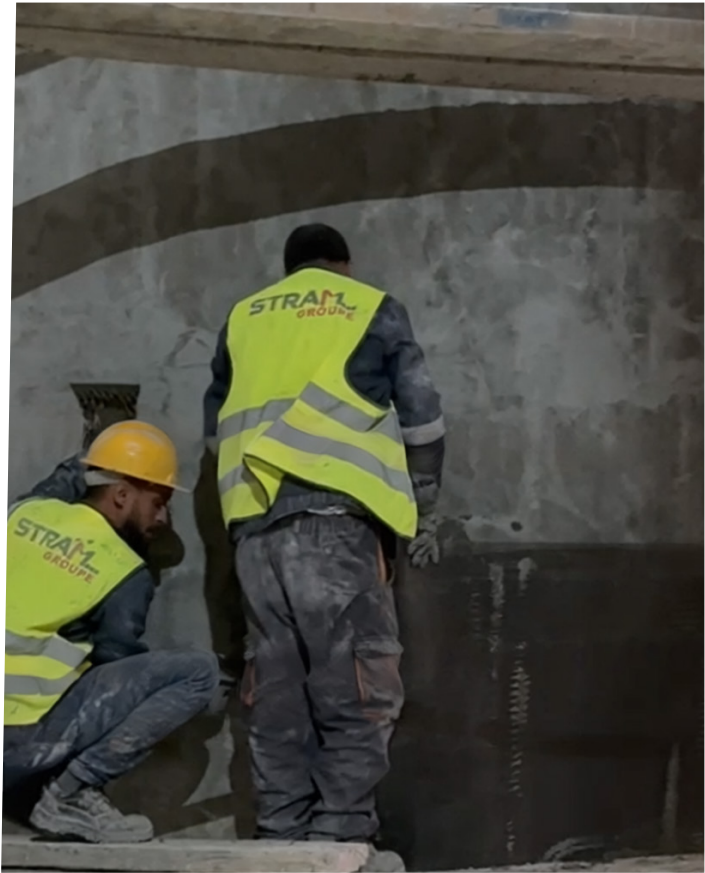
Project description

As part of the rehabilitation and maintenance works at the Knauf plant in Sidi Bouzid, Tunisia, a structural strengthening project was carried out on two reinforced concrete silos used for gypsum storage. The cylindrical silos have a diameter of approximately 3 m and a total height of 12 m. Over time, several cracks appeared on the concrete surfaces, reflecting progressive deterioration of the structures and raising concerns about their long-term durability and structural performance.

Project requirement

The project required a strengthening solution specifically adapted to the structural and geometric constraints of the existing silos. The strengthening system was primarily intended to improve the structural performance of the silos while controlling and limiting crack development induced by the relatively frequent low-magnitude seismic activity associated in the region. The solution also had to accommodate the actual service conditions of the structures and provide adequate structural reliability over their service life.

Due to the cylindrical and curved geometry of the silos, the strengthening system also needed to be highly adaptable to the existing concrete substrate. Reinforcement was required in both the longitudinal and circumferential directions, while ensuring effective adhesion to the existing concrete and providing a durable solution capable of withstanding the demanding conditions of the industrial environment.



Project facts

Project name	Knauf Plant
Location	Sidi Bouzid, Tunisia
Year	2026
Application	FRCM Strengthening
Product	Sika® Carbodur®-300 Grid



Project participants

Owner	Knauf Plâtres S.A
Engineer	Dahlia Consult
Sub-contractor	STRAM



Sika solutions

Following the assessment of the different available strengthening options, an FRCM (Fabric-Reinforced Cementitious Matrix) system was selected. The adopted solution consisted of the SikaCarboDur®-300 Grid, a bidirectional carbon-fiber grid, embedded in the specialized cementitious matrix SikaMonoTop®-3200 Grid.

The bidirectional carbon-fiber grid provides reinforcement in both longitudinal and transverse directions, making it particularly suitable for controlling cracking and improving the structural behavior of the cylindrical silos. Its flexibility also allows the grid to closely follow the curved geometry of the concrete substrate, ensuring continuous and efficient reinforcement.

Prior to the strengthening works, the deteriorated concrete was mechanically removed and the substrate was repaired and leveled. Local concrete repairs were performed using SikaMonoTop®-412 N, while SikaTop®-121 Surface was used for surface restoration and leveling, providing a suitable and uniform substrate for the FRCM system. The strengthening system was applied over approximately 250 m², covering approximately 10 m in height of the silos.

The combination of SikaCarboDur® 300 Grid, SikaMonoTop®-3200 Grid, and Sika’s compatible concrete repair mortars provided an integrated solution combining structural strengthening, bidirectional reinforcement, crack control, and durability, while adapting effectively to the complex cylindrical geometry of the existing silos. The works were carried out during January and March 2026.

Les Conditions Générales de Vente les plus récentes sont applicables. Veuillez consulter la dernière version de la Fiche Technique Produit locale avant toute utilisation.

**Contact**

Tél. +216 700 22 700

sika.com.tn

Sika Tunisia

Zone Industrielle Ksar Said

2086 Douar Hicher

Tunisia