

Changshan thermoelectric plant

Abrasion- and corrosion-
resistant multipurpose epoxy

Case study



The Customer

Datang Changshan Power Plant

The Location

Jinan, Shandong Province, China

The Challenge

Flowing water, corrosion, and abrasion

The Solution

SIGMASHIELD™ 880 (grey)

The Benefits

- Faster drying
 - Abrasion resistant
 - Easy application
 - Surface-tolerant
 - Better crack- and sag resistance at high-film thickness
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The Result

- Easy application – saves labor and time
 - Can be applied in challenging conditions
 - Protects longer under aggressive environments
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The Customer

The Datang Changshan Thermoelectric Power Plant is located in Jinan City, in the Shandong Province on the eastern coast of the People's Republic of China. The power plant is owned by China Datang Corporation, a large-scale power enterprise group and state-owned corporation. Datang specializes in the development, investment, construction, operation and management of power energy for the state. Datang comprises six subsidiaries and eight branch companies, which operate the largest thermal power plant in China, the largest wind farm in the world, and the second largest hydropower project in China.

The Challenge

The Changshan Thermoelectric Plant's large steel circulating water pipes required protection from the effects of prolonged flowing water exposure. An abrasion-resistant and corrosion-resistant epoxy coating was required to protect the steel pipes that were painted in an outside environment.

The cost and time necessary to maintain these assets demanded long times between maintenance intervals while in service. Abrasion- and corrosion resistance are key to long service life and durability. In addition, the product's ease of use for the applicator and use of non-specialized equipment was critical.





The Solution

The SIGMASHIELD 880 coating's superior water immersion resistance and abrasion resistance makes it the ideal product to protect both the interior and exterior of the large Changshan water circulating pipes.

The coating was mixed by adding the hardener to the base under agitation. Five percent thinner was added by volume after the base and hardener had been thoroughly mixed. The SIGMASHIELD 880 coating was applied after sandblasting preparation of the interior and exterior of the pipe in an outside environment at 15°C (59°F) and 52% ambient humidity. The pipe weld seams were stripe coated first and then two coats, approximately 300 microns (12 mils) thick, were applied to a final thickness of 650–900 microns (26–36 mils).

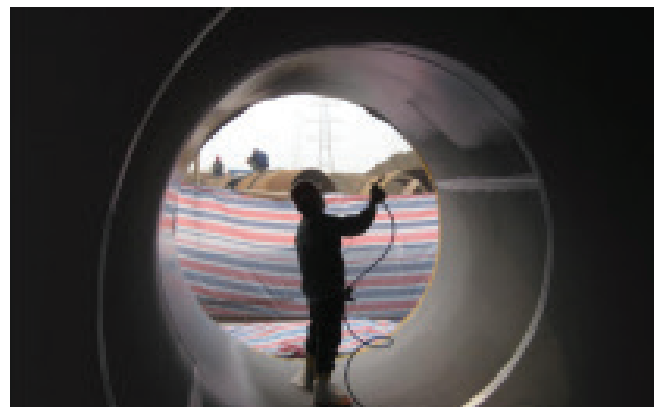
The Benefits

The SIGMASHIELD 880 coating's superior water immersion resistance and abrasion resistance are ideally suited to protect the pipe interior and exterior. Although the coating is not reinforced, it achieves the similar abrasion resistance performance of many reinforced epoxies. This provides durability for years of use.

The use of a local 65:1 volume ratio Changjiang brand spray pump demonstrates the use of non-specialized equipment and ease of application of the SIGMASHIELD 880 coating.

The Result

The appearance of the first coat of the SIGMASHIELD 880 product was excellent and the second coat resulted in the same finish. The coating dried rapidly and the final film thickness was then checked. The owner and project supervisor were very pleased with the application performance of the product. In addition, the SIGMASHIELD 880 coating's abrasion- and corrosion resistance will provide protection for the circulating water pipes of the Changshan Thermoelectric Plant well into the future.



Top image: Initial pipe condition

Middle image: Pipe interior spray application

Bottom image: Inspection

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