

IJmuiden Sea Lock, IJmuiden, The Netherlands

PPG's sustainable coating system ensures 30-year protection for the world's largest sea lock

Case study



Customer

Rijkswaterstaat (RWS), Ministry of Infrastructure and Water Management

Location

IJmuiden, The Netherlands

Challenge

To provide effective and extended coating protection over 30 years for the lock gates and fenders in the world's largest sea lock project

Solution

PPG SIGMAPRIME® 200 universal epoxy primer; PPG SIGMASHIELD™ 880GF surface-tolerant, high-build glass flake epoxy; PPG SIGMADUR™ 1800 high-solids polymeric urethane

Benefits

Specifically designed for offshore splash zones and heavy-duty environments, our epoxy glass flake system delivers outstanding protection, can be rapidly immersed, and continues to cure upon seawater immersion. The system is superior to FRP with greater corrosion protection, easier application, and produces greater productivity

Result

Our global expertise and capability, reinforced by our unified, cross-continent technical support, enabled this important project to be implemented smoothly. Experienced teams in The Netherlands and South Korea provided the most suitable solutions to meet the lock's 30-year lifetime span along with on-site field technical support during the fabrication phase

The Customer

Rijkswaterstaat (RWS) is responsible for the asset management and maintenance of the main infrastructure facilities in The Netherlands.

The current North Lock (built in 1929) will reach the end of its technical service life in 2029 and has become too small for today's increasingly larger seagoing vessels. A new lock was needed as the North lock, which measures 400 x 50 x 13 meters, is also coming to the end of its economic lifespan. The new IJmuiden sea lock (500 x 70 x 18 meters), which provides access to the Amsterdam port area, will become the world's largest sea lock. The work commenced in 2016 and is due to be completed by the end of 2019.

The contract was awarded to the OpenIJ consortium, which consists of BAM PPP PGGM (50%), and VolkerWessels and DIF (50%).

The Challenge

The IJmuiden sea lock will be exposed to a range of destructive forces generated by freshwater and saltwater: ships, tides, UV rays, sea mist, rain, condensation, and the continuous combined effects of oxygen and water.

The project is a long-term PPP (Public-Private Partnership) contract of 30 years (4 years of construction and 26 years of service life). Accordingly, RWS expects to benefit from the security of a well-constructed and proven asset that will be in good condition after 30 years when the sea lock returns to RWS.



IJmuiden Sea Lock, IJmuiden, The Netherlands

PPG's sustainable coating system ensures 30-year protection for the world's largest sea lock



The Solution

Initially, a FRP (Fiber Reinforced Polyester) product was stipulated in the contract painting specification. However, Rijkswaterstaat chose a more robust system that would provide the required 30-year protection span.

Our system used surface preparation according to ISO 8501 Sa 2½ and steel dressing according to NORSOK M501 and comprised these products:

Splash and Above Water Area (Exterior):

PPG SIGMAPRIME™ 200 @ 150 µm
PPG SIGMASHIELD 880GF @ 300 µm
PPG SIGMASHIELD 880 GF @ 300 µm
PPG SIGMADUR™ 1800 @ 50 µm
PPG SIGMADUR 1800 @ 50 µm

Splash and Above Water Area (Interior):

PPG SIGMAPRIME 200 @ 150 µm
PPG SIGMASHIELD 880GF @ 300 µm
PPG SIGMASHIELD 880GF @ 300 µm

Under Water Area (Interior and Exterior)

PPG SIGMAPRIME 700 @ 175 µm
PPG SIGMAPRIME 700 @ 175 µm

The Benefits

JV OpenIJ chose the PPG SIGMASHIELD 880GF coating system over the traditional FRP system based on our range of highly effective product solutions, proven track record, combined with the crucial ability to provide cross-border support.

Our PPG SIGMASHIELD 880GF durable epoxy system provides outstanding protection and is specifically designed for use in offshore splash zones and heavy-duty environments. The coating can be rapidly immersed and continues to cure upon seawater immersion, making it ideal for splash zones. Our PPG SIGMAPRIME 200/ PPG SIGMASHIELD 880GF system is approved as per the NORSOK M-501 System 7A standard.



The PPG SIGMADUR 1800 coating uses Versatic technology, which means that the topcoat will provide superior weathering resistance, enhanced gloss retention and superior chalking resistance compared to conventional polyurethane, to meet the project's requirement for 30 years.

The Result

Our global expertise and capability proved to be particularly valuable with our cohesive cross-continent support enabling this important project to be executed smoothly.

The PPG Netherlands team provided professional technical consultation to discuss the customer's precise project needs and then provide appropriate solutions. In addition, the PPG South Korea team was able to provide comprehensive on-site field technical support during the fabrication phase in South Korea.

Supplying our PPG's sustainable coating system to provide long-lasting protection for the world's largest sea lock project is a momentous achievement and will surely provide the impetus for further project wins of this type.

Visit ppgpmc.com or contact:

Asia Pacific ☎ +86-21-6025-2688 ✉ ppgpmc.ap@ppg.com | Europe, Middle East and Africa ☎ +32-3-3606-311 ✉ customers@ppg.com

Latin America ☎ +57-1-8764242 ext. 201 ✉ ppgpmcandean-ca@ppg.com | North America (US & Canada) ☎ +1-888-9PPGPMC ✉ PMCMarketing@ppg.com

No rights can be derived from the content of this publication. Unless otherwise agreed upon in writing, all products and technical advice are subject to our terms of sale, available on our website ppgpmc.com. All rights reserved. The PPG logo, We protect and beautify the world, and all other PPG marks are property of the PPG group of companies. All other third-party marks are property of their respective owners. Use of them herein does not imply any affiliation with or endorsement by their respective owners. PM16222 Created Jan 2018. © 2018 PPG Industries, all rights reserved.

