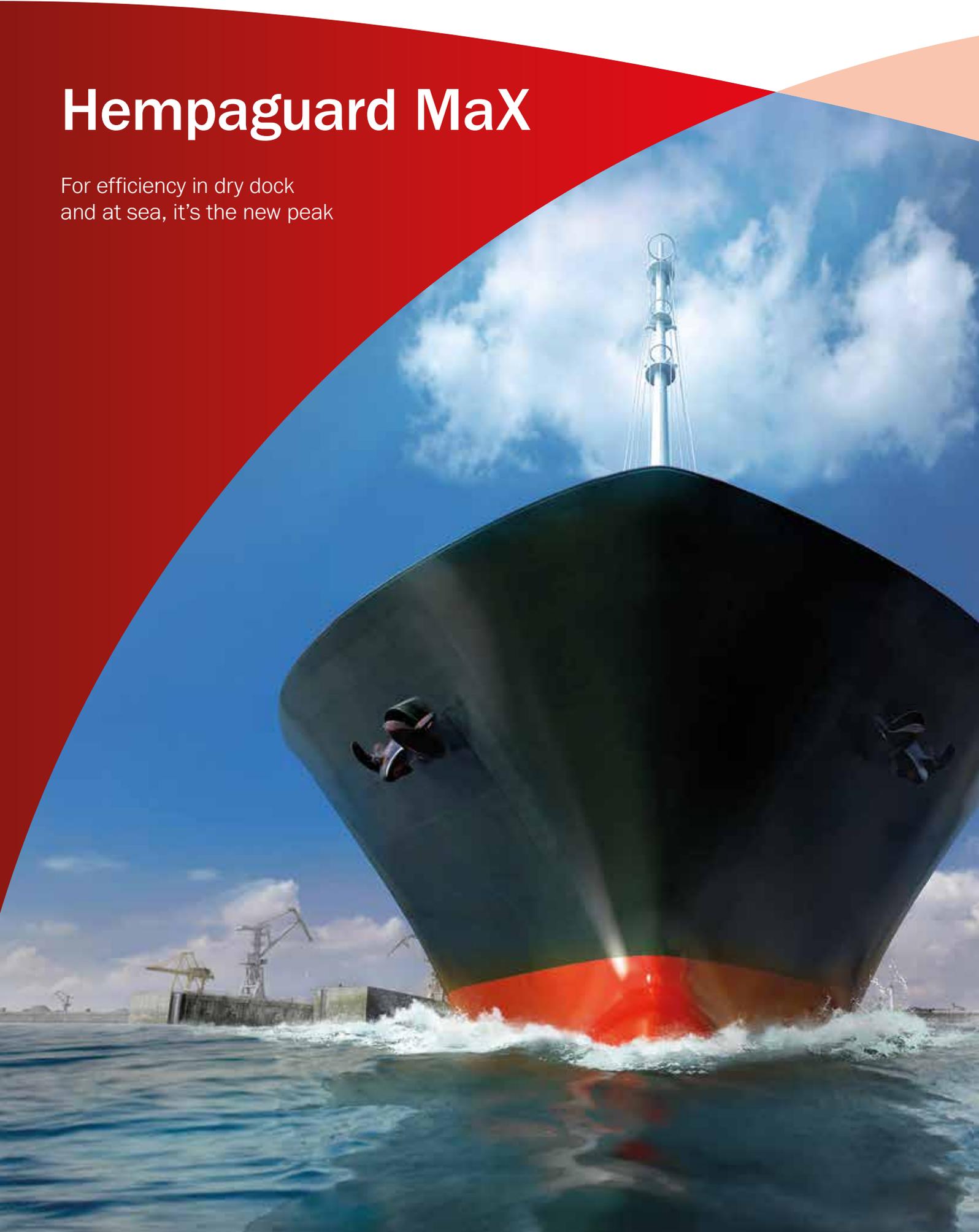


Hempaguard MaX

For efficiency in dry dock
and at sea, it's the new peak



With new SOx regulations now imminent, efficiency has never been more important

In tough conditions, the first impulse is to make savings across the board. But cheap can ultimately be expensive, especially when it comes to your hull coating.

Taking the long view by investing in high performance products can make you considerable savings. In fact, with our latest advanced hull system, you could achieve fuel savings that deliver ROI in just three months.*

With data spanning the past five years, Hempaguard X7 has demonstrated that innovative hull coating systems can make significant savings for your fleet. Now, Hempaguard MaX takes that efficiency to a new peak: faster in the dock, faster in the sea.

In a world where marginal gains matter, choosing an advanced hull coating like Hempaguard MaX can make a significant difference to your operational success. Make it part of your response to the 2020 SOx regulations.

“The longevity in a quality paint such as Hempel gives us confidence in the protection of our assets.”

– Shel Hutton, CEO, and Chairman,
Ultra Deep Solutions

Achieve ROI in three months with high performance coatings*

*Based on a VLCC with activity level of 70 per cent and low sulphur fuel costing 35 per cent more than bunker fuel over a five year life cycle, Hempaguard MaX system delivers an annual saving of around USD 1.8 million compared to a market average antifouling equating to ROI of three months.



Hempaguard X7

With over five years in market, its efficiency and protection profiles are indisputable

Launched in 2013, Hempaguard X7 was the first coating to use Hempel's innovative Actiguard® technology, producing the strongest defence against fouling in the industry, with the aim of reducing fuel and maintenance costs.

Actiguard® technology combines a smooth silicone coating with a hydrogel microlayer and active ingredients. It provides an extra strong protection, reducing maintenance costs for vessels of all kinds, including those in warm water.

In 2019, just six years after its launch, Hempaguard X7 reached an impressive 1400+ full-vessel applications. Collectively, the owners of those 1400+ vessels reduced their annual bunker bill by more than USD 500 million. If the entire world fleet were similarly upgraded, USD 12 billion in fuel would be saved and CO₂ emissions would be reduced by 95 million tonnes annually.

"Hempaguard X7 is successful in terms of fuel efficiency, and clearly performed better than any other hull coating we tried so far."

- Kemal Bozkurt, COO, U.N. Ro-Ro



Proven fuel efficiency

1.4 per cent guaranteed maximum speed loss over five years, six per cent higher out of dock fuel saving compared to traditional antifouling.



Powered by Actiguard® technology

The first hull coating on the market with our hydrogel and silicone formulation for smooth surface combined with controlled release of active ingredients.



Applied to over 1400 vessels

Suitable for all vessels and taken up by more than 1400 ships in just five years, saving more than USD 500 million in fuel.

Hempaguard MaX

The new peak for efficiency

Hempaguard MaX brings even higher savings in dock and in service compared to Hempaguard X7. This is thanks to the increased smoothness created from the unique synergy of the system: Hempaprime Immerse 900, Nexus II and Hempaguard X8.

- More fuel efficiency with 1.2 per cent maximum guaranteed speed loss over five years thanks to exceptional antifouling performance
- Faster in the dock with an innovative three-coat system to save up to 2 days
- Longest idle time antifouling guarantee in the market

Hempaguard MaX also allows full trading flexibility, without restriction on water temperature, trading area or trading pattern. And it offers an even longer idle time guarantee compared to the current market leader, Hempaguard X7.

Not only does Hempaguard MaX bring benefits at sea; it also improves efficiency in the dry dock thanks to its innovative three-coat system, which means less time in dock and faster return to service.



Hempaguard MaX. A revolutionary three-coat system

The unique features of Hempaguard MaX are enhanced by Hempaprime Immerse 900, Nexus II and Hempaguard X8, which form Hempaguard MaX – the innovative three-coat system.

This reduction in the number of coats saves time in the dock, while the synergy between the different coatings brings even greater benefits at sea, creating a low Average Hull Roughness (AHR) for less drag and improved fuel efficiency. Hempaprime Immerse 900 and Nexus II also bring enhanced anticorrosive capability.

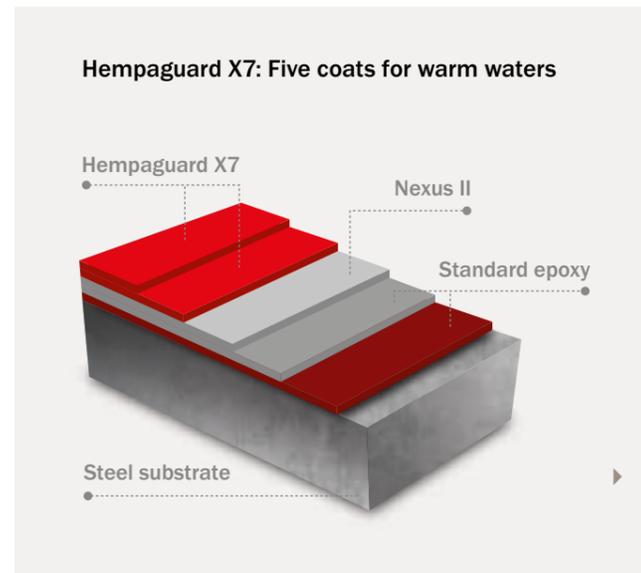
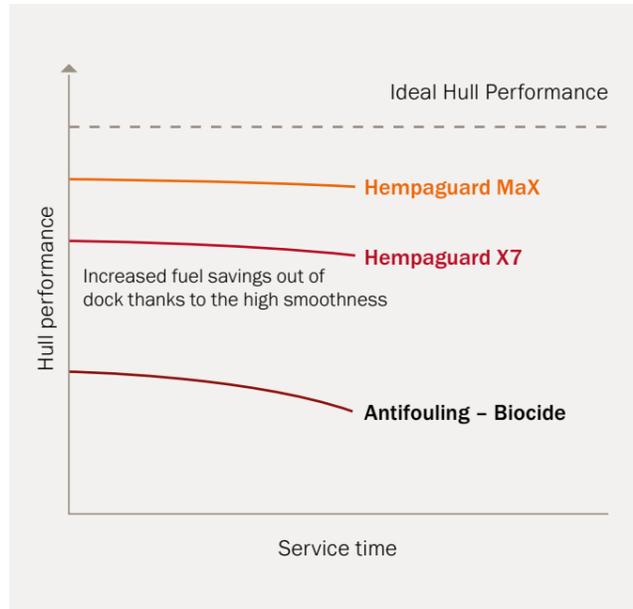
This three-coat system together with SHAPE (Systems for Hull and Propeller Efficiency) offers the most fuel efficient coating solution in the industry.

Even more fuel efficiency

- Higher smoothness of the system
- Lower speed loss

Lower dry docking cost

- Fewer coats
- Faster application
- Less time in the dock, with up to two days saved



Hempaprime Immerse 900: Fewer coats, reduced Average Hull Roughness

- Just one coat of Hempaprime Immerse 900 offers the protection of two standard maintenance epoxy coats, reducing time and cost in the dock
- At sea, it contributes to an extreme low Average Hull Roughness (AHR) profile delivering increased fuel savings
- One product works for all areas, including topsides, decreasing complexity and streamlining project management



Nexus II: Next-generation tiecoat technology with enhanced anticorrosive capability

- Contributes to an extremely low Average Hull Roughness (AHR) profile delivering increased fuel savings
- Works in synergy with Hempaprime Immerse 900 and Hempaguard X8 to give full anticorrosive protection in just three coats, reducing time in the dry dock
- Higher application flexibility through longer time application window simplifies planning



How will you navigate the 2020 SOx regulations?

Make Hempaguard MaX part of your response strategy

Document your savings with SHAPE

Systems for Hull and Propeller Efficiency

SHAPE documents Hempaguard MaX's fuel savings in a programme of continuous improvement, making you more efficient, profitable and competitive in an evolving marine world. It helps you make informed choices, for instance about whether slow steaming is the right solution, based on verified and consistent sources of data.

SHAPE, based on the ISO 19030 method, incorporates a tailored hull performance programme with expert data analysis from a team of chemists, physicists and hydrodynamicists. It delivers KPIs based on speed loss measurements and cost-effective monitoring:

1. Hempel establish individual speed/power reference curves before collecting, cleansing and purifying in-service data
2. The next step is to perform precise speed loss calculations
3. Then customers receive a variety of KPI measurements and advice on decisions to impact fuel efficiency

SHAPE monitors long term trends via in-service performance KPIs as well as short term trends through the maintenance trigger KPI. The solution adds value to vessels that don't trade much, generating data to understand how much the hull is affected by long idle times and allowing fact-based decisions to be taken.

Whatever the age, size and operating patterns of your vessel, Hempel's SHAPE offer combines all the elements of efficiency optimisation: high quality data gathering, expert analysis, and decisive advice. When you use it with our advanced coating systems, like Hempaguard MaX, there is no better way to improve your efficiency.

To find out more visit SHAPE.hempel.com



Tailored hull performance programme with a dedicated Hempel performance analyst



Expert data analysis from our team of chemists, physicists and hydrodynamicists



Key performance indicators based on speed loss measurements to track performance gains over time



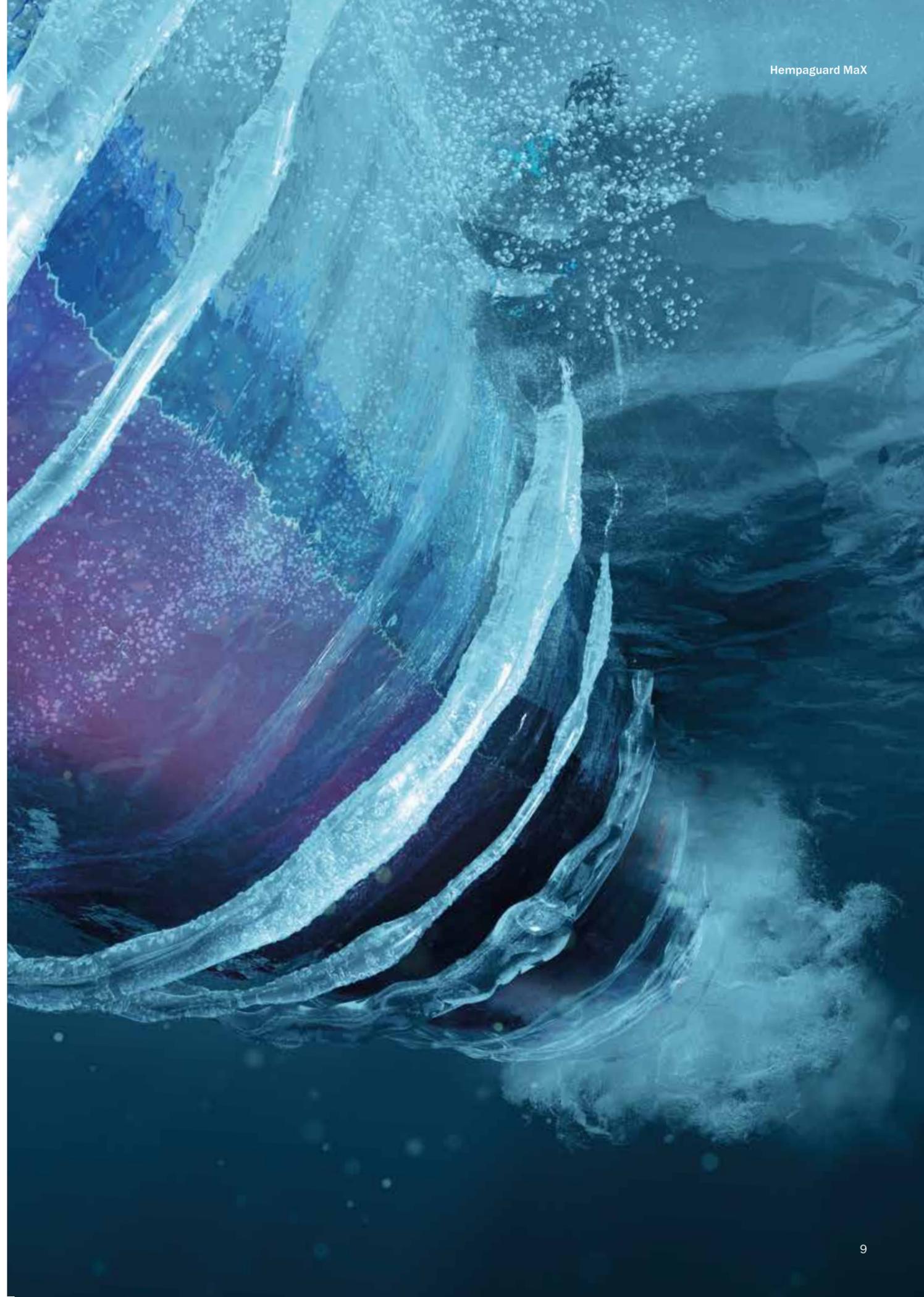
Monitoring and guaranteed fuel savings applicable for hull coatings specified up to 60 months dry docking intervals



Transparent cost-effective performance monitoring compliant with industry best-practice guidelines and restrictions



World leading friction-reducing coatings based on more than 100 years of Hempel expertise



Project management: An integrated part of the Hempaguard MaX offering

For decades, Hempel has built a strong team of experienced coatings advisors with unique knowledge in the application of silicone coatings. The combination of Hempel Services with Hempaguard MaX ensures coating application consistency, quality and transparency.

For the ultimate
in efficiency
and performance
Hempaguard MaX
is combined with
project management.

Project management

Hempel project management service provide an in dock full management solution for dry-docking. With decades of experience, our expert team manages the entire application process, from initial planning through to coating application, supervision, and reporting.

The combination of project management with Hempaguard MaX will lower docking costs, reduce off-hire time and ensure that the Hempaguard Max delivers maximum fuel-saving performance for its entire service life.

Your benefits:

- Reduce your overall docking time and costs
- Reduce your off-hire time to maximise vessel earnings
- Maximise vessel fuel-saving performance after docking
- Make informed decisions throughout the process
- Ensure your coatings achieve their designed service life
- Free up internal resources during drydock

Project management key deliverables

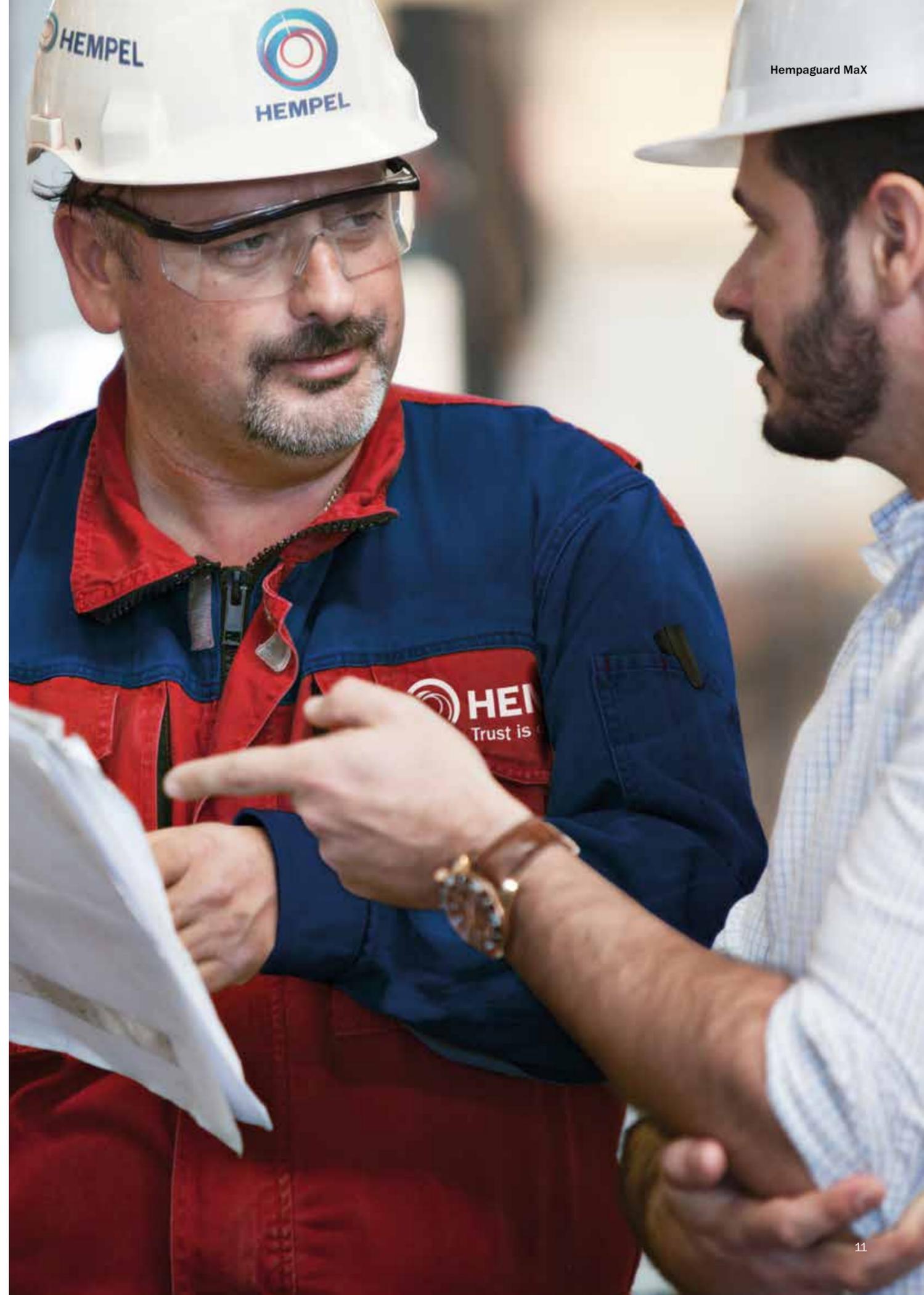
- Full management of the coating process
- Organisation and planning of the entire project related to coatings
- Continuous follow-up and adjustment of planning ensuring shortest possible docking time while ensuring high quality
- Equipment inspection
- Assessment and In-situ instruction of man power
- Paint drum distribution per area
- Paint consumption control
- Dry film thickness monitoring
- Daily progress report
- Average Hull Roughness measurements

A full range of value-adding services

With multiple levels of service, there's an ideal Hempel Services solution for your vessel, whatever type of coating you're applying.

- Project management
- Premium coating advisory
- Standard coating advisory
- Condition survey
- Training

Visit service.hempel.com to find out more or contact your local sales representative.



Hempaguard MaX

As a world-leading supplier of trusted coating solutions, Hempel is a global company with strong values, working with customers in the protective, marine, decorative, container and yacht industries. Hempel factories, R&D centres and stock points are established in every region. Across the globe, Hempel's coatings protect surfaces, structures and equipment. They extend asset lifetimes, reduce maintenance costs and make homes and workplaces safer and more colourful.

Hempel was founded in Copenhagen, Denmark in 1915. It is proudly owned by the Hempel Foundation, which ensures a solid economic base for the Hempel Group and supports cultural, social, humanitarian and scientific purposes around the world.

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