HEMPEL
Trust is earned

Marine Services

Your vessel, our expertise -
a performance partnership

Marine Services

Why use Hempel Services?

Increase return on investment

- Lower docking and application costs
- Optimised docking time

Ensure coating performance meets specifications

- Decrease long-term maintenance requirements
- Increase fuel efficiency and reduce emissions

Save time and resources

- Ensure projects stay on time and on budget
- Free up resources so you can focus on your core business

Your vessel, our expertise – a performance partnership

For the ultimate in coating performance and project efficiency, choose Hempel Services.

Whatever type of vessels you operate, it's vital that you control operating expenses to reduce total cost of ownership and ensure profits. This is increasingly important today, when overcapacity, falling freight rates and stricter regulations are putting pressure on operators. At Hempel, we understand that even marginal gains can make a big difference, which is why we invest in new technologies, services and expertise to help you drive costs down.

Our coatings protect against corrosion to increase your vessel's lifetime. They help reduce long-term maintenance costs, improve fuel efficiency and cut emissions. But for you to reap the full benefits of our coatings, they need to be applied correctly. Whether you're coating the underwater hull, cargo holds or ballast tanks, our Marine Services will ensure you get a high-quality finished coating that will deliver value for its entire service life – giving you extended maintenance intervals, lower maintenance requirements, higher fuel efficiency and maximum vessel trading time.

Our expert coating advisors and certified project managers provide holistic application management solutions for both newbuild and maintenance projects – to help you reduce project costs, optimise resource deployment, and give you more time to focus on your core business.

Efficiency, powered by Hempel Services

Five reasons to choose Hempel Services

Our expert coating advisors ensure your maintenance and newbuild projects run efficiently and that your coatings are applied correctly – so you can realise the full benefits of our coating systems.

Reduce long-term maintenance requirements

Over its lifetime, your vessel will incur a range of costs associated with steel and coating maintenance. The lower these costs, the higher your return on investment. We work with the shipyard and applicators to ensure a high-quality coating application from start to finish.

This reduces the risk of mechanical damage and premature coating failure – for longer maintenance intervals and lower maintenance costs.

- Reduced total cost of ownership
- Longer service intervals
- Less maintenance across the vessel's lifecycle

Lower docking costs

Docking expenses can quickly add-up, which is why we place strong emphasis on reducing your surface treatment time and overall coating application costs. We coordinate with the shipyard and work with applicators to optimise turnaround times and ensure proper coating application.

- Reduce waste and optimise coating consumption
- Lower surface preparation costs
- Fewer days in dry dock

Increase fuel savings

Our advanced hull coatings reduce speed loss to cut your fuel consumption and emissions. But correct application is crucial for you to reap the full benefits. Our coating advisors oversee application to ensure you get the full fuel-saving potential of our hull coatings, right from day one and throughout the entire docking interval.

- Lower fuel bills during docking intervals
- Reduce CO_2 emissions
- Minimise speed loss

Optimise repair costs

Unnecessary application costs, excessive paint consumption and avoidable rework can increase your repair costs. Our coating advisors work closely with the shipyard to plan your dry docking project, and manage sub-contractors and applicators to ensure your coating will achieve its designed lifetime. This gives you full control of the costs associated with surface preparation, coating consumption and rework – and can reduce the time your vessel spends in dock.

- Optimise your maintenance budget
- Reduce rework
- Reduce dock rents

Cut down on lost revenue

Every day your vessel spends in dock translates directly to lost revenue. We assess your vessel's condition and the repair paint specification to ensure better prioritisation of repair works – to cut the number of days your vessel spends in dock. You receive detailed reports with crucial information about vessel parameters and we supervise application work to ensure that proper standards are followed.

- Fewer off-hire days
- Optimised curing time
- Efficient surface preparation and coating application

Marine Services

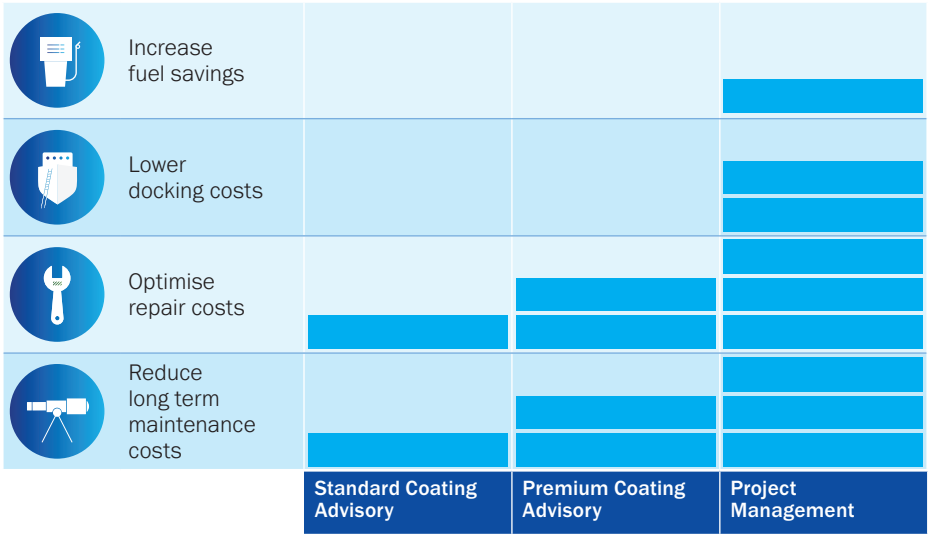
Hempel Marine Services

Standard Coating Advisory
We support with coating processes when onsite (subject to availability).

Premium Coating Advisory
We are present during all the critical phases of your project to help achieve quality results according to specification.

Project Management
We assign dedicated coating advisors and assume full project control to ensure desired outcomes.

Service value chart for Coating Advisory Services

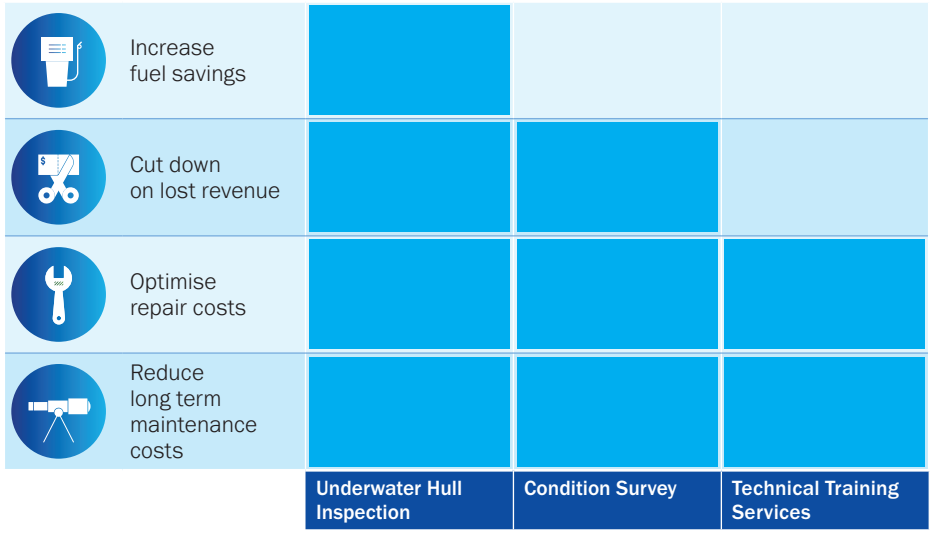


Underwater Hull Inspection
We provide fast, safe and effective underwater inspections with Remotely Operated Vehicles to support your hull maintenance decisions with our expert reporting.

Condition Survey
We evaluate your asset's structure and coating system and help plan future maintenance work to extend asset lifetime and reduce maintenance requirements.

Technical Training Services
We provide training courses for applicators, supervisors, technical staff and quality assurance personnel to ensure improved efficiency and quality.

Service value chart for Specialised Services



Marine Services

Standard Coating Advisory

Monitoring and support for long-term coating performance

> “Technical service that fights for the ship owner’s interest.”
>
> International shipping company

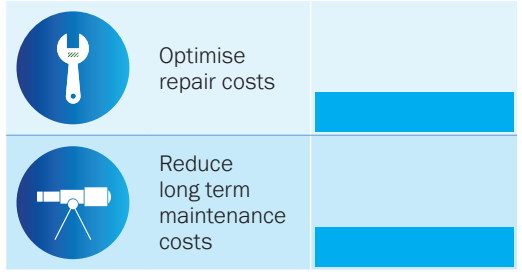
With our Standard Coating Advisory services we conduct basic checks and provide support for core coating activities.

We monitor surface preparation and coating application when onsite, making sure quality standards are followed and any potential issues are corrected before project completion. As a result, you can expect lower repair costs and longer maintenance intervals.

What you get:

- A coating advisor to support with your coating project (onsite visits depend on availability)
- A coating advisor to plan an initial briefing
- A final quality check
- A brief report after all on-site visits

Service value chart



Marine Services

Premium Coating Advisory

Advice and support to lower your docking costs and increase long-term coating performance

"Solving paint problems and providing answers on the spot. Always on time."

Shipyard owner

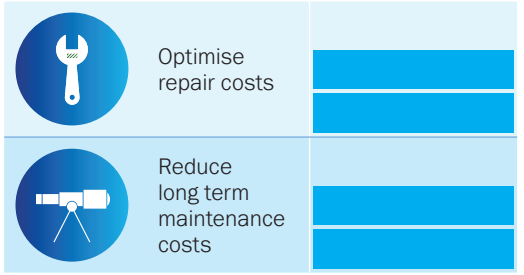
With our Premium Coating Advisory service, a Hempel coating advisor is onsite during all the critical phases of your project.

We support with all coating processes to deliver a high-quality result, and work with the shipyard and applicators to ensure all processes runs smoothly – to reduce your repair costs and get your vessel back in the water as quickly as possible.

What you get:

- A coating advisor onsite to advise on surface preparation and coating application during all critical project phases
- A coating advisor to plan an initial briefing
- Advice on how to optimise time and resources during the project
- Quality checks during all critical project phases
- Progress reports
- A full report at the end of the project

Service value chart



Marine Services

Project Management

Full management of the coating process for lower total cost of ownership

"Highly professional approach, with timely reports, technical advisory, alternative solutions and active cooperation."

International shipping company

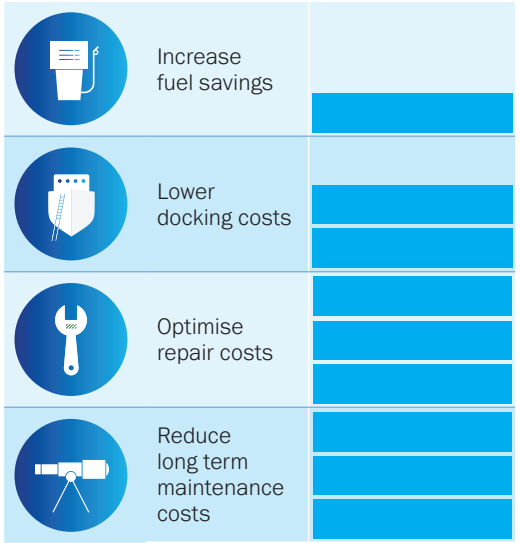
Designed specifically for performance-driven and fuel-conscious owners and operators, our Project Management service delivers the optimum reduction in repair costs and docking time to improve future fuel savings and reduce long term maintenance costs.

A dedicated Hempel coating advisor manages your entire coating project from start to finish, and we coordinate with the superintendent, shipyard, sub-contractors and applicators to ensure every concern is addressed. As a result, you benefit from an optimised docking time and know that your hull coating will deliver maximum fuel savings throughout its entire service life.

What you get:

- Full management and coordination throughout the entire project to ensure excellent surface preparation and application, minimum resource use and faster project completion
- A pre-project inspection, including specification verification, staff training and equipment/coating preparation
- Ongoing quality checks
- Daily progress reports
- A full report at the end of the project

Service value chart



Underwater hull inspection

Fast, safe and effective underwater hull inspections with ROVs

> “Quick inspection and detailed reporting that connect the dots between fouling and my fuel penalty”
>
> International shipping company

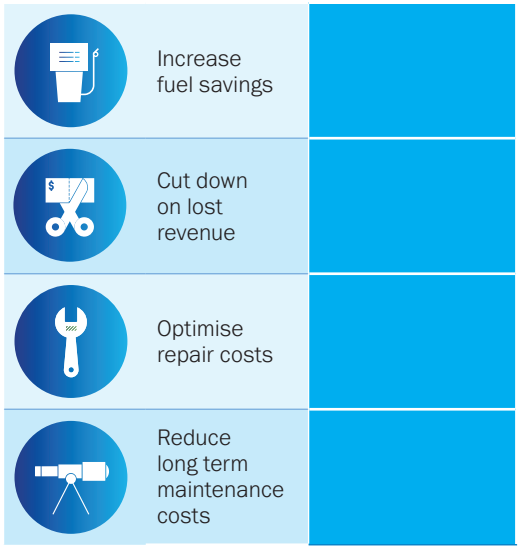
Our underwater hull inspection service provides with a cost effective way to analyse and evaluate biofouling accumulation and coating defects. The inspection is carried out using remotely operated vehicles (ROVs), for increased speed and safety.

With this service our expert ROV operators conduct an underwater hull inspection on vessel verticals, the flat bottom, and niche areas. Our reporting provides with recommendations to optimise vessel fuel performance, create transparency during chartering, and prepare the next dry dock.

What you get:

- Access to inspection images and video files
- Assessment of biofouling accumulation and coating defects
- Analysis of fuel penalty from fouling or coating defects
- Support with the required actions for maximising fuel-efficiency, reducing CO_2 emissions and controlling the transfer of invasive species
- Optimised planning of your dry-docking project by conducting an in-water hull inspection before entering the dock
- Standardised and easy-to-understand reporting that is consistent across ports, allowing for simple comparison with previous hull inspections

Service value chart



Marine Services

Condition Survey

Expert diagnostics to reduce maintenance requirements and costs

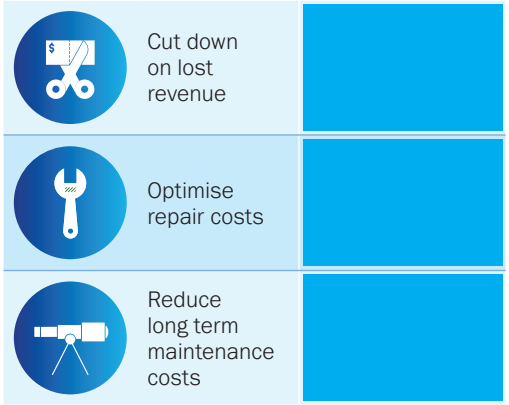
In a Condition Survey, we evaluate the status of your existing structure and coating system and provide recommendations for corrective actions.

An expert coating advisor performs a complete survey of your vessel, identifies potential issues and advises on long-term maintenance requirements. This ensures you can correct issues before they become a problem to keep your long-term maintenance costs down and extend your vessel's trading time and service life.

What you get:

- A full inspection of your coated and/or uncoated surfaces to assess their existing condition
- Advice on future maintenance requirements and planning
- A full evaluation report, including recommendations

Service value chart



Marine Services

Technical training services

Develop the in-house skills you need for future success

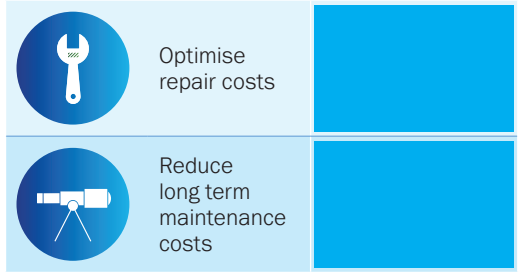
The continued long-term performance of your coating application team depends on the level of their skills.

Our technical training services are specially developed to give your staff the technical skills and insight they need to consistently produce high-quality work, whether they're applying the coatings themselves or overseeing final quality. All our courses are delivered face-to-face using a combination of theory and practice with real life examples. We can tailor our training services to fit the needs of your team and deliver at Hempel's facilities or your site.

Training courses:

- Training for applicators to ensure excellent surface preparation and coating application
- Coating fundamentals training for supervisors, managers and technical staff, covering everything from corrosion theory to ISO guidelines and quality control
- Onboard maintenance training for superintendents, fleet managers and other technical staff, covering everything you need to ensure high-quality, timely and cost-efficient onboard maintenance
- Training for quality assurance and control for supervisors, managers and technical staff, delivered at the start of a project and covering everything required to ensure good quality assurance processes

Service value chart



Service comparison

See how each Hempel service compares

Deliverables	Standard Coating Advisory	Premium Coating Advisory	Project Management
Coating advisor (CA) availability			
Coating advisor presence	Intermittent presence (subject to availability)	Assured CA presence during critical phases	Dedicated CA full time for entire project
Coating advisor has the authority to stop project			✓✓
Coating advisor experience	✓	✓	✓✓
Pre-project inspection			
Pre-project briefing and introduction	✓	✓	✓✓
Project meetings and “tool-box talks” onsite			✓✓
Organisation and planning of the entire project related to coatings			✓✓
Survey of existing substrate and coating system		✓	✓✓
Verification of paint order and specification	✓	✓	✓✓
Distribution of specification and relevant Product Data Sheet			✓✓
Surface preparation inspection			
Pre-cleaning inspection		✓	✓✓
Equipment inspection (including blast pressure)			✓✓
Surface preparation inspection	Intermittent presence (subject to availability)	Assured CA presence during critical phases	Dedicated CA full time for entire project
Microclimate		✓	✓✓
Surface roughness and cleaning		✓	✓✓
Chloride tests (if specified)		✓	✓✓
Application inspection			
Paint drum distribution per area		✓	✓✓
Paint consumption control		✓	✓✓
Inspection of equipment and tools (including nozzles, tips and pump checks)			✓✓
Spray technique and wet film thickness checks		✓	✓✓
Paint storage facility audit (handling, rotation, storage condition and shelf life)	Intermittent presence (subject to availability)	✓	✓✓
Microclimate		✓	✓✓
Application		✓	✓✓
Overcoating intervals		✓	✓✓
Dry Film Thickness (DFT)		✓	✓✓
Final Inspection			
Check and report overall appearance of coating work	✓	✓	✓✓
Check and report total DFT		✓	✓✓
Check cure time before undocking/taking vessel item to use			✓✓
Reporting			
Progress or visit reports	When onsite	When onsite	Daily
Final report	✓	✓	✓✓
Report type	Basic	Detailed	Detailed

Underwater Hull Inspection

Before the inspection

- Define inspection scope with vessel agent/customer
- Evaluate vessel trading pattern, idle times, activity and average speed
- Review coating and dry-docking record
- Develop dive plan based on vessel's general arrangement
- Arrange permits and plan site visit

During the inspection

- Coordinate with vessel and agents to ensure port access
- Clear communication with Captain and vessel crew regarding inspection scope and timing
- Evaluate accessibility and adjust dive plan to ensure optimal data collection
- Capture images and record videos following dive plan
- Live adjustment of underwater path based on observations during the inspection

Reporting

- Analysis of underwater image and video files
- Classification of the type and extent of biofouling and coating defects
- Link hull condition with coating benchmarks and vessel activity
- Clear recommendations for corrective actions to optimise vessel operation and hull performance

Condition Survey

Uncoated structures

- Visual inspection on the actual surface condition
- Check and report design considerations/substrates
- All inspections and findings to be clearly documented with pictures
- Document results and recommendations

Coated structures

- Visual inspection on the actual condition of the existing coating system including colour shade of the coating
- Evaluating the type and percentage of defect (example in accordance to ISO 4628-1/5) per main area on the structure and determine the possible cause(s) of failure, if applicable
- Evaluate and investigate which environment(s) the coating may have been exposed to and the duration
- Check and report DFT measurements
- Check the adhesion/cohesion of the system and report according to ASTM D3359 (cross-cut test), ISO 16276-2 or ASTM D6677 (x-cut test)
- Discontinuity (pinhole) testing and report according to NACE SP 0188/ISO 29601, if required
- If the generic paint type is unknown, determine the paint type using the 'thinner method'
- All inspections and findings to be clearly documented with pictures. The report may include recommendations about the optimal timing for and the specific type of maintenance or repair work required
- Document results and recommendations

Reporting

- A final report will be distributed when the coating advisor's inspections are completed

Technical Training Services

Training for applicators

- Basic paint concepts
- Paint preparation and paint application
- Climatic conditions
- Defects and rectification
- Health and safety

Coating fundamentals

- Corrosion theory
- Surface preparation and paint preparation
- Coating types and comparisons
- Check and report DFT measurements
- General paint compatibility
- ISO 12944 (if relevant)
- Datasheets and physical contacts
- Specifications and calculations
- Safety Data Sheets
- Climatic conditions
- Quality control and assurance
- Coating defects and failures (causes and prevention)

Onboard maintenance training

- Basics of corrosion and anti-corrosives
- Surface preparation, paint preparation and paint application
- Coating types and comparisons
- General paint compatibility
- Quality control and inspection equipment
- Climatic conditions
- Ventilation in confined spaces
- Specifications and calculations
- Datasheets and physical contacts
- Health and safety
- Coating defects and failures

Training for quality assurance and quality control

- Surface preparation and paint application
- Climatic conditions
- Corrosion theory and protection methods
- Generic coating types and comparisons
- General paint compatibility
- Datasheets and safety data sheets
- Specifications and calculations
- ISO 19840
- Quality inspection
- Equipment
- Coating defects and failures (cause and prevention)

Marine Services

More than 600 highly qualified technicians at your service

Hempel service locations R&D centres

In a competitive environment, success requires more than just technology. You also need people with the right skills, knowledge, experience and attitude to turn that technology into a value-adding solution. This is where Hempel stands out.

Each day, our more than 600 highly qualified coating advisors and engineers work with customers around the globe to optimise their projects and ensure their coating systems meet or exceed expectations.

Hempel coating advisors are safety certified within:

- IRATA
- HUET
- BOSIET

More than 70 per cent of Hempel coating advisors are certified to the highest technical standard within:

- NACE
- FROSIO

More than 600 highly qualified coating advisors work within specialised areas such as:

- Marine
- Containers
- Wind
- Offshore
- Concrete Coatings
- Fire Protection

hempel.com

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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Dec_2020