



Jotun Protects Property

RETURN OF INVESTMENT – GUARANTEED



HPS | Hull Performance Solutions



We offer you



Substantial fuel cost and greenhouse gas emissions saving



Competitive return on investment and payback period as compared with other eco-technology investments



Low investment risk

A Hull Performance Solution from Jotun can be expected to deliver a 15% hydrodynamic efficiency gain and a 8.5% fuel cost and greenhouse gas emission saving as compared to a market average alternative. The pay-back period is usually less than 1 year. Since Jotun Hull Performance Solutions include reliable performance measurement and a no-cure-no-pay high performance guarantee, investment risk is limited as compared to typical investment alternatives.

The condition of a ship's underwater hull surface has a substantial impact on its' energy efficiency – both at the New Build stage and for the vessel in operation. Around 1/10 of the world fleet's fuel consumption can be attributed to deterioration in hull and propeller performance*. This translates into around \$30 billion in annual additional fuel cost and around 0.3% of all man-made carbon emissions.

Jotun Hull Performance Solution have been designed to make it easy to maximize hull performance and thereby reduce both fuel cost and greenhouse gas emissions. The solutions combine state-of-the-art antifouling and application technologies with reliable performance measurements and high performance guarantees.

*MEPC 63-4-8



SeaQuantum | **x200**
The ultimate fuel saver

**Jotun Hull Performance
Application Procedure**

**Jotun Hull Performance
Measurement Method**

**Jotun Hull Performance
Guarantee**

SeaQuantum X200 builds upon the excellent performance of the **SeaQuantum brand**

Silyl Methacrylate
SeaQuantum X200 is the first of a new generation antifouling paints

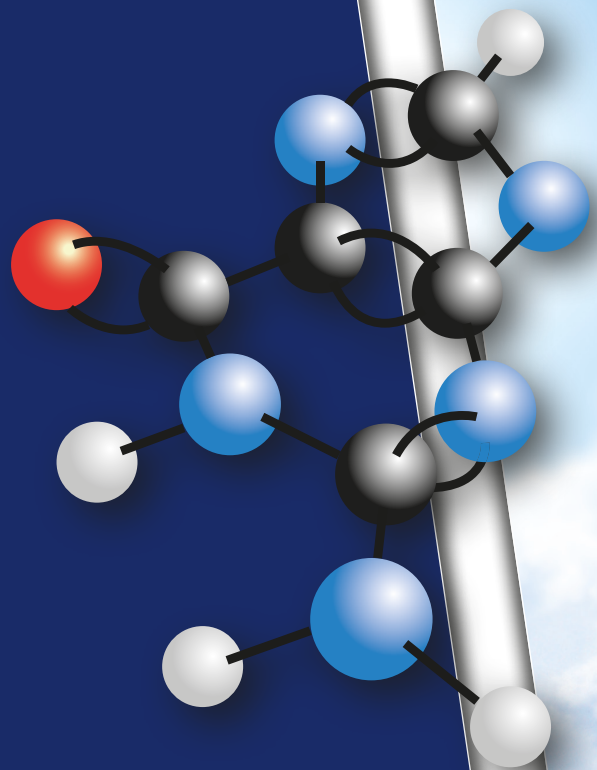
The result of 20 years
of Research & Development within Silyl Acrylate

Including
>15 000 trial formulations and
>10 000 full applications

Optimized for performance
No compromise approach to product development

Benefits

- 🕒 **Unrivalled performance** over docking interval – significant energy efficiency gain on average over lifetime as compared with other known products on the market
- 🕒 **Improved initial performance** – as good as, or better than other low friction coatings and FRCs out-of-dock



SeaQuantum | **x200**
The ultimate fuel saver

**WE LEAD
THE WAY**
because nothing substitutes
EXPERIENCE!

Jotun Hull Performance Application Procedure

Paint by itself is a semi-finished product, and hull performance is greatly influenced also by the quality of pre-treatment and application.

Jotun Hull Performance Application Procedure has been optimized to deliver the smoothest possible hull surface and include a comprehensive regime for measuring and documenting the solution's contribution to reducing average hull roughness.

Benefits

- **Maximized initial performance** – getting the most out of each and every step of pre-treatment and paint application
- **Minimized risk** of subsequent paint system failure – actionable advice

How we do it

- **Purpose designed application procedure**
- **Handpicked** on-site Project Manager and increased manpower in dock
- **Improved** lines of communication with both customer and yard

We have never found
**A JOB
WELL DONE**
to be a waste of time and money



Jotun Hull Performance Measurement Method

Since we are in the business of delivering documented high performance we are dependent on being able to offer a reliable measurement methodology.

Jotun Hull Performance Measurement Method isolates the impact of a ship's underwater surfaces on its' energy efficiency by tracking relative changes in the relationship between the power delivered to the propeller and speed through water over time.

Significant sources of random and systematic error are managed by collecting data with a very high frequency, by using a set of pre-defined data filters and normalization procedures, as well as a quality assurance protocol that includes monitoring of the correlation between different sensors.

Benefits

- **Clearly demonstrated hull and propellor performance** over the full docking interval
- **Enables the investment to be monitored** throughout lifetime

Reasons why

- **Statistics based on** long time approach combined with high frequency data collection (typically more than 2,5 million data points per year)
- **All processing, filtering and normalization** is done in a fully transparent manner
- Proposed as starting point for work on **ISO 19030**





ESSENTIAL QUESTIONS TO ASK:

HOW IS IT MEASURED?

HOW MUCH ARE YOU SAVING?

COMPARED TO WHAT?

**IF YOU CANNOT
MEASURE
A RETURN**

the investment has no value

Jotun Hull Performance Guarantee

By being able to reliably measure the extent to which high performance has been delivered, it is possible to also guarantee on it.

Jotun has developed a set-up for performance based contracting where Jotun either documents that high performance has been delivered or returns the additional investment in the hull performance solution.

Customers are in effect paying for delivered high performance – not for paint with the promise of high performance.

Jotun Hull Performance Guarantee have been designed to offer our customers as much flexibility as possible in terms of operation.

Benefits

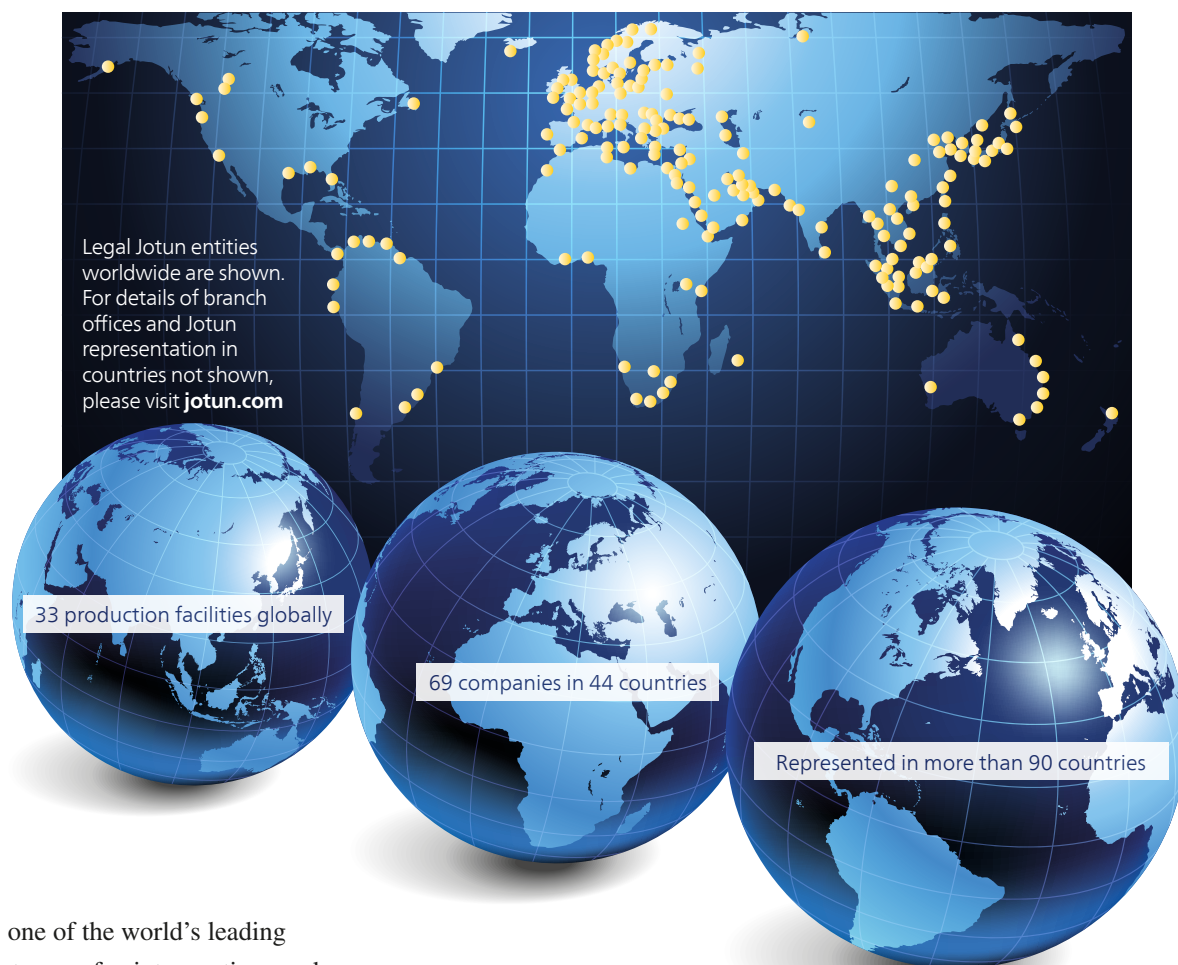
- 🕒 **Eliminates most investment risk;** much or all of the difference between solution cost and standard cost will, in the end, be paid back unless high performance has been delivered
- 🕒 Strengthening Jotun's incentive to do **whatever it takes** to deliver high performance – also in the face of unforeseen circumstances
- 🕒 **Places responsibility** for assessing and managing antifouling risk where it belongs; with the antifouling maker



It is not yet possible to separate hull and propeller performance. How can Jotun claim a ship performance increase: We take responsibility for both!
That's how confident we are!

We guarantee high performance, or cash-back equal to the difference in cost between a market average solution and high performance solution.

A global provider of coatings



Jotun is one of the world's leading manufacturers of paints, coatings and powder coatings.

We have 69 companies in 44 countries and 33 production facilities in 22 countries on all continents, and are represented in more than 90 countries with our network of agents, branch offices, distributors and sales offices around the world.

Our operations cover development, production, marketing, R&D and sales of paints and coatings to protect and decorate surfaces in residential, shipping and industrial markets.

UNIFORM STANDARD ACROSS THE GLOBE



- Easy to exchange trained technical personnel across national borders and multi-national projects.
- Compulsory training for all technical and sales personnel in marine and protective segments. Most of our coating advisors and technical personnel have FROSIO and/or NACE certification.
- Same competence in maintaining company standard procedures globally.

Jotun GreenSteps

FOR A MORE COLOURFUL WORLD, WE ALL NEED TO BE A LITTLE GREENER

Jotun recognises the responsibility it has to the environment and has established its own GreenSteps programme.

Through the GreenSteps programme we address market demand for more sustainable coatings solutions.



Reducing VOC emissions



Reducing hazardous materials



Reducing energy consumption



Reducing carbon footprint



Reducing waste

Jotun Marine Coatings and Jotun Protective Coatings offices worldwide

Legal Jotun entities worldwide are listed. For details of Branch offices and Jotun representation in countries not listed, please visit jotun.com

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