



**JOTUN**

# *SeaQuantum*

The ultimate fuel saver

*Optimum antifouling performance tailor-made for your vessel*



# A global provider of coatings



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

We have 69 companies and 36 production facilities 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.

Jotun is organised in four segments and seven geographical regions with its head office located in Sandefjord, Norway.

### MARINE COATINGS

As the world's leading provider of marine coatings we supply to ship owners, management companies and others for both newbuilding and dry-dock.

### PROTECTIVE COATINGS

Our protective coatings are protecting assets in industries such as offshore, energy, infrastructure and hydrocarbon processing.

### POWDER COATINGS

Our powder coatings are supplied to manufacturers of appliances, furniture, building components, pipelines and general industries.

### DECORATIVE PAINTS

Our interior and exterior paints are being used by consumers and professionals worldwide, for protection and decoration.

### 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

## BENEFIT FROM THE WORLD'S MOST ADVANCED ANTIFOULING

SeaQuantum is based on the world's most advanced antifouling technology.

### Silyl acrylate technology

As a recognised pioneer in the use of polymer binders in marine coatings, Jotun has been working with silyl acrylate technology since the 1990s.

SeaQuantum's reliable long lasting protection is provided by a linear polishing rate and a low leached layer – ensuring a controlled release of biocides over time.

Predictable and reliable performance is extremely important for a vessel to maintain speed without an increase in fuel consumption.

### Launched in 2000

After years of development and testing, SeaQuantum was launched in 2000.

### SeaStar Alliance

In 2002, Jotun A/S and Japan's NKM formalised their co-operation by forming SeaStar Alliance which has

around 25% of the global marine market. Sharing and developing existing technology helps sharpen the competitive edge for SeaStar Alliance, enabling its partners to maintain their status as leaders in the marine market.



*A butterfly was chosen for the 2000 launch of SeaQuantum to represent freedom of antifouling from TBT*

### Proven innovation process

The development of silyl acrylate binders conformed to Jotun's proven innovation process. After years of development and testing, SeaQuantum was launched in 2000.

The latest innovation from more than 18 years' experience came through the 3rd generation silyl acrylate technology in the SeaQuantum S-line and SeaQuantum Pro U. A further consequence of continuous focus on improvement and providing the best solution to the market was the launch of the unique SeaQuantum X200 based on silyl methacrylate in 2011.

### Applied on close to 10,000 vessels worldwide

Today, SeaQuantum products have been applied on close to 10,000 vessels worldwide, and it is widely recognised as the industry's leading silyl acrylate antifouling brand.



### Origami

*from ori meaning 'folding' and kami meaning 'paper' (kami changes to gami due to rendaku) is the traditional Japanese art of paper folding, which started in the 17th century AD at the latest and was popularised outside of Japan in the mid-1900s. It has since then evolved into a modern art form illustrated by the photographs in this brochure which also represent the close links between Jotun and NKM, our Japanese partner in SeaStar Alliance.*

## TECHNOLOGY



### ***SeaQuantum, fuel saving and the environment***

*By choosing the right antifouling solutions, fuel costs can be reduced by 15 per cent annually, with a corresponding reduction in carbon emissions of an estimated 190 million metric tonnes.*

*SeaQuantum leads the antifouling market in reducing carbon emissions.*

### **SeaQuantum – a range of proven performance options**

The current SeaQuantum range provides the very best in proven performance over the operating period – whether the vessel is static, operating at high speeds, slow steaming or for newbuilding appearance.

These antifouling products incorporate the latest innovations in premium antifouling technology, based on decades of experience, providing unrivalled fuel cost savings compared to market average performance.

# MARKET TRENDS

## CHANGES IN THE MARINE MARKET INCREASE THE IMPORTANCE OF TA

With the the marine market adversely affected by changes in the global economic situation, the choice of an antifouling, protection of guarantees on both hull performance and engine performance and fuel consumption, in particular, become increasingly important. To support our customers, we are tailor making solutions for the scenarios that present themselves in the market:



Fuel now represents about 60% of an average vessel's operating costs



Around 90% of vessel operators are slow steaming to reduce fuel costs

### **Newbuilding and dry-docking challenges**

Where a vessel continues to operate at/or close to the original design speed

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 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.

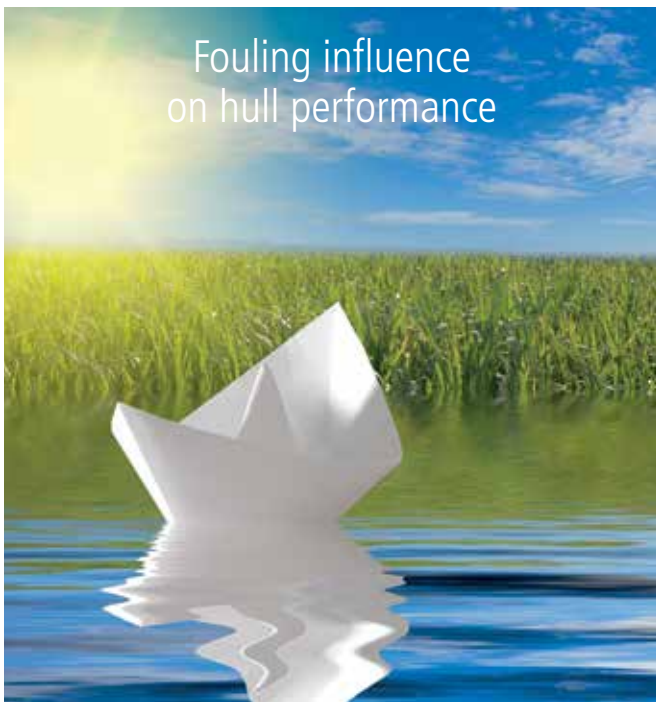
### **Slow steaming**

Where a vessel is trading at relatively low speed, much slower than the original design intention

The major negative effect of slow steaming is related to reduced polishing of, in particular, lower quality products.

High quality silyl based antifouling products are less dependent on vessel movement and provide higher flexibility with regard to vessel activity and speed and are hence recommended for slow steaming vessels.

# TAILOR MADE ANTIFOULING SOLUTIONS



## Longer idle periods

Where a vessel is waiting for cargo at a port or anchorage for as long as 6 weeks or more

For lay-up and idle periods, the ability to have sufficient protection at the surface of the hull when the vessel is static is the most important aspect when choosing antifouling technology. During longer time perspectives, technical aspects such as the formation of a leached layer make the choice of antifouling technology critical. Minimal or no build-up of leached layers (i.e. SeaQuantum technology) is necessary to maintain the hull fouling free during lay-up and idle periods.

## Lay up

Where a vessel experiences longer periods of idle condition

Will this lay-up be for a short term or long term period – the so called ‘hot’ lay-up and ‘cold’ lay-up alternatives?

A ‘hot’ lay-up means leaving skeleton crew in place to keep all systems running on minimum power – meaning they could be redeployed very quickly. A ‘cold’ lay-up means shutting down the ship almost completely for an extended period. This leads to greater cost savings, but the ship will probably need dry-docking before coming back into service.

From an antifouling point of view the absolute best way to enter a lay-up situation is with a freshly painted hull directly out of a newbuilding or repair yard. Our best advice to further improve the situation is to replace the last coat with a full coat of high quality silyl based antifouling.

# UNIQUE FUEL SAVING SOLUTIONS

## A RANGE OF PRODUCTS TO MEET THE CHALLENGES OF CHANGING MARKET CONDITIONS

A SeaQuantum solution can be expected to deliver up to 15% propulsion efficiency gain as compared to a market average alternative. The pay-back period is usually less than one year. Since Jotun's Hull Performance Solutions include reliable performance measurement and a no-cure no-pay high performance guarantee, investment risk is limited when compared to typical investment alternatives.

### SeaQuantum X200

The latest development in tin-free, high performance, ultra low friction self-polishing antifouling, based on the latest development in hydrolysing silyl methacrylate copolymers. By combining outstanding life-time performance with excellent application properties and state-of-the-art technical service, SeaQuantum X200 and our Hull Performance Solutions (HPS) is one of the most attractive investments on the market today.

### SeaQuantum S Line

A self-polishing, outstanding low friction antifouling based on 3rd generation silyl acrylate technology.

### SeaQuantum Ultra S

The ultimate fuel saver for low activity and slow steaming.

### SeaQuantum Classic S

The ultimate fuel saver for medium activity vessels.

### SeaQuantum Plus S

The ultimate fuelsaver for high speed activity vessels.

| VOYAGE FACTOR | SeaQuantum X200   | SeaQuantum Static | SeaQuantum Ultra S | SeaQuantum Classic S | SeaQuantum Plus S | SeaQuantum Pro U |
|---------------|---|-------------------|--------------------|----------------------|-------------------|------------------|
| 0 – 25%       | High performance guaranteed<br>Visit <a href="http://hps.jotun.com">hps.jotun.com</a> |                   |                    |                      |                   |                  |
| 25 – 50%      |   |                   |                    |                      |                   |                  |
| 50 – 90%      |   |                   |                    |                      |                   |                  |





*SeaQuantum offers you:*

- ENVIRONMENTAL ADVANTAGE
- FINANCIAL ADVANTAGE
- STRATEGIC ADVANTAGE

### SeaQuantum Static

The ultimate fuel saver for low activity and slow to medium steaming vessels. A self-polishing outstanding low friction antifouling based on state-of-the-art silyl acrylate technology.

### SeaQuantum Pro U

The ultimate fuel saver for universal trading vessels. A self-polishing low friction antifouling based on 3rd generation silyl acrylate technology.

| IDLE DAYS     | SeaQuantum X200   | SeaQuantum Static | SeaQuantum Ultra S | SeaQuantum Classic S | SeaQuantum Plus S | SeaQuantum Pro U |
|---------------|---|-------------------|--------------------|----------------------|-------------------|------------------|
| Up to 24 days | High performance guaranteed<br>Visit <a href="http://hps.jotun.com">hps.jotun.com</a> |                   |                    |                      |                   |                  |
| Up to 30 days |   |                   |                    |                      |                   |                  |
| 30 – 90 days  |   |                   |                    |                      |                   |                  |



Deterioration of hull and propeller performance over the dry-docking interval currently accounts for 10% of the world fleet's energy consumption.

## **HPS** | Hull Performance Solutions

Jotun's Hull Performance Solutions have been designed to make it easy to maximise 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 measurement and high performance guarantees.

### We offer you



Substantial fuel cost and GHG emissions saving



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



Low investment risk

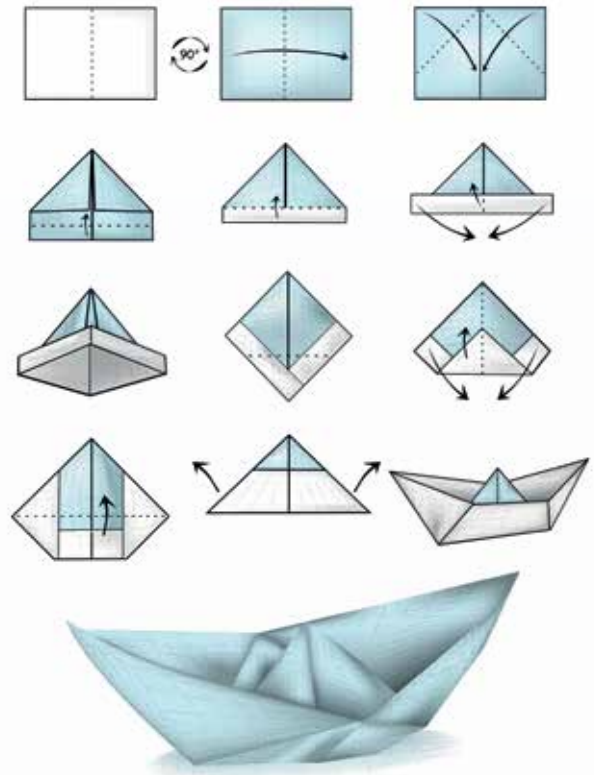


*Optimum performance tailor-made for your vessel*



Download our App and calculate your potential fuel cost savings

A guide to making your own origami ship



# 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](http://jotun.com)

## AUSTRALIA

Jotun Australia Pty. Ltd.,  
P.O. Box 105, Altona North,  
9 Cawley Road,  
BROOKLYN, VIC 3025  
Tel: +61 3 9314 0722  
Fax: +61 3 9314 0423

## BRAZIL

Jotun Brasil Ltda.  
Av Santa Luzia, 2084 - Santa Luzia  
24.722-315 São Gonçalo  
RIO DE JANEIRO  
Tel: +55 21 3147 3850  
Fax: +55 21 3147 3861

## CYPRUS

Jotun Cyprus Ltd.  
56 Theodorou Potamianou  
Aphrodite Court, 1st Floor  
4155, Kato Polemida  
LIMASSOL  
Tel: +357 25 374455 / 374440 / 374477  
Fax: +357 25 374400

## P.R. of CHINA

Jotun Coatings (Zhangjiagang) Co. Ltd.  
Jotun COSCO Marine Coatings  
(Qingdao) Co. Ltd.  
Floor 20, Jiu Shi Mansions,  
No. 28 Zhong Shan Road (South)  
SHANGHAI 200010  
Tel: +86 21 6333 080 0  
Fax: +86 21 6326 968 6

Jotun Coatings (Zhangjiagang) Co. Ltd.  
Jotun COSCO Marine Coatings  
(Qingdao) Co. Ltd.  
Room 709-12, Goldlion Digital Network  
Centre, 138 Tiyu Road East,  
GUANGZHOU, 510620  
Tel: +86 20 38 78 07 49  
Fax: +86 20 38 78 19 66

## HONG KONG

Jotun COSCO Marine Coatings (H.K.) Ltd  
Room 902, 9/F,  
101 King's Road, North Point  
HONG KONG  
Tel: +852 2527 6466  
Fax: +852 2861 1307

## DENMARK

Jotun Danmark A/S Jotun Coatings  
Columbusvej 5, 2860 Søborg,  
COPENHAGEN  
Tel: +45 4492 9400  
Fax: +45 4492 9401

## EGYPT

El Mohandes Jotun S.A.E.  
Plot 193, Second District,  
City Center, Fifth Settlement,  
NEW CAIRO  
Tel: +202 2614 9999  
Fax: +202 2614 9998

## FINLAND

Nor-Maali OY  
Vanhatie 20, 15240 LAHTI  
Tel: +358 3 874 650  
Fax: +358 3 874 6550

## FRANCE

Jotun France S.A.  
22/24 Rue du President Wilson, Bat.A  
92300 LEVALLOIS PERRET  
Tel: +33 1 4519 3882  
Fax: +33 1 4519 3894

## GERMANY

Jotun (Deutschland) GmbH  
Haferweg 38  
22769 HAMBURG  
Tel: +49 40 851 960  
Fax: +49 40 856 234

## GREAT BRITAIN

Jotun Paints (Europe) Ltd.  
Stather Road, Flixborough,  
SCUNTHORPE DN15 8RR  
Tel: +44 1724 400 000  
Fax: +44 1724 400 100

## GREECE

Jotun Hellas Ltd.  
33, Zeppou Street,  
Glyfada  
ATHENS 16675  
Tel: +30 210 42 85 980-82  
+30 210 42 86 035-37  
Fax: +30 210 42 85 983/  
+30 210 42 87 237

## INDIA

Jotun India Pvt Ltd.  
502, 5th Floor,  
Boston House,  
Suren Road,  
Behind Cinemax Theatre,  
Andheri East,  
Mumbai - 400 093  
Tel: +91 22 2822 4600  
+91 22 2820 5900 (+fax)  
Fax: +91 22 2820 5900

## INDONESIA

P.T. Jotun Indonesia  
Kawasan Industri MM2100  
Blok KK-1, Cikarang Barat  
Bekasi 17520  
Tel: +62 21 8998 2657  
Fax: +62 21 8998 2658

## IRELAND

Jotun (Ireland) Ltd.,  
Unit K7, Marina Commercial Park,  
Centre Park Road, CORK  
Tel: +353 214 965955  
Fax: +353 214 965992

## ITALY

Jotun Italia S.P.A.  
Via Petronio, 8, Zona Ind. Noghese  
34147 - MUGGIA (TRIESTE)  
Tel: +39 040 23 98204  
Fax: +39 040 23 98222

## JAPAN

NKM Coatings Co., Ltd.  
12-1, Minamirokugo 3-chome,  
Ota-ku,  
TOKYO 144-0045  
Tel: +81 3 6758 2212  
Fax: +81 3 6758 2213

## KOREA (SOUTH)

Chokwang-Jotun Ltd.  
30th Block Jisa Science Park,  
1205 Jisa-dong, Gangseo-gu,  
BUSAN 618-230  
Tel: +82 517 976 000  
Fax: +82 517 117 735

## LIBYA

Jotun Libya J.S.Co  
Almumtaz Co. S.A. (Jotun).  
Aalseka Street  
P.O. Box 6850  
TRIPOLI  
Tel: +218 214777811  
Fax: +218 214780718

## MALAYSIA

Jotun (Malaysia) Sdn. Bhd.  
Lot 7 Persiaran Perusahaan,  
Section 23, P.O. Box 7050  
40700 SHAH ALAM  
Tel: +60 351 235 500  
Fax: +60 351 235 632

## THE NETHERLANDS

Jotun B.V.  
Postbus 208  
3200 AE SPIJKENISSE  
Visiting address:  
Curieweg 11b, 3208 KJ Spijkenisse  
ROTTERDAM  
Tel: +31 181 678 300  
Fax: +31 181 617 899

## NORWAY

Jotun A/S  
P.O. Box 2021,  
3202 SANDEFJORD  
Visiting address:  
Hystadveien 167, 3209 Sandefjord  
Tel: +47 33 45 70 00  
Fax: +47 33 45 79 00

## OMAN

Jotun Paints Co. LLC  
Rusayl Ind. Estate, Road No.10  
P.O. Box 672 Code 111, MUSCAT  
Tel: +968 2444 6100  
Fax: +968 2444 6105

## PAKISTAN

Jotun Pakistan (Pvt.) Ltd.  
2KM Defence Road, Off 9KM Raiwind  
Road, Adjacent Valencia Homes Gate  
LAHORE 544770  
Tel: +92 423 532 350 0-3  
Fax: +92 423 532 1387

## PHILIPPINES

Jotun (Philippines) Inc.  
846 West Service Road, Km.18  
South Super Highway  
Paranaque City,  
METRO MANILA 1714  
Tel: +63 2239 1032-34  
Fax: +63 2822 0760

## POLAND

Jotun Polska Sp.zo.o.  
ul. Magnacka 15,  
80-180 GDAŃSK KOWALE  
Tel: +48 58 555 1515  
Fax: +48 58 781 9692

## RUSSIA

Jotun Paints O.O.O.  
Varshavskaya Str., 23/2, Office 53  
196128 ST. PETERSBURG  
Tel: +7 812 640 00 80  
Fax: +7 812 640 00 81

## SAUDI ARABIA

Jotun Saudia Co. Ltd.  
Jeddah Industrial City, Phase 3,  
P.O. Box 34698, JEDDAH 21478  
Tel: +966 2635 0535 / 2636 1271  
Fax: +966 2636 2483

## SINGAPORE

Jotun (Singapore) Pte. Ltd.  
37 Tuas View Crescent  
Singapore 637236  
Tel: +65 650 882 88  
Fax: +65 6265 7484

## SOUTH AFRICA

Jotun Paints South Africa (PTY) Ltd.  
Wimbledon Road, P.O.Box 187  
BLACKHEATH 7581  
Tel: +27 21 905 1070  
Fax: +27 21 905 1652

## SPAIN

Jotun Iberica S.A.  
Poligon Santa Rita,  
Calle Estatica no. 3,  
08755 Castellbisbal,  
BARCELONA  
Tel: +34 937 711 800  
Fax: +34 937 711 801

## SWEDEN

Jotun Sverige AB  
P.O. Box 151, Klangfärgsgatan 13,  
421 22 VÄSTRA FRÖLUNDA  
Tel: +46 3169 6300  
Fax: +46 3169 6397

## THAILAND

Jotun Thailand Ltd  
Amata Nakom Ind. Estate (BIPII)  
700/353 Moo 6 Tumbol  
Donhualoh, Amphur Muang  
CHONBURI 2000  
Tel: +66 2 022 9888  
Fax: +66 38 214 373/375

## TURKEY

Jotun Boya San. ve Ticaret. A.S.  
Balabandere Caddesi Hilpark Suites Sitesi No.10,  
Istinye 34460 Sariyer  
ISTANBUL  
Tel: +90 21 2279 7878  
Fax: +90 21 2279 2549

## U. A. E.

Abu Dhabi  
Jotun Abu Dhabi (LLC)  
P.O. Box 3714, Mussafah  
ABU DHABI  
Tel: +971 2691 0700  
Fax: +971 2551 0232

## Dubai

Jotun U.A.E. Ltd. (LLC)  
P.O. Box 3671,  
Al Quoz Industrial Area  
DUBAI  
Tel: +971 4339 5000  
Fax: +971 4338 0666

## USA

Jotun Paints Inc.  
9203 Highway 23, P.O. Box 159,  
Belle Chasse, LA 70037  
Tel: + 1 713 860 8241  
Fax: +1 713 860 8242

## VIETNAM

Jotun Paints (Vietnam) Co. Ltd.  
Song Than Industrial. Zone,  
No.1 Street 10,  
Di An District, Binh Duong Province  
Tel: +84 650 3742206  
Fax: +84 650 374 2205

## YEMEN

Jotun Yemen Paints Co. Ltd  
P.O. Box 70183, Al Alam  
ADEN  
Tel: +967 2820 546-9  
Fax: +967 2249 362

## Jotun A/S

P.O. Box 2021,  
N-3202 Sandefjord, Norway  
Tel: +47 33 45 70 00

[jotun.com](http://jotun.com)



Jotun Protects Property