JOTUN

Paints and Coatings for Working Vessels





Protection made easy. The Jotun guide to economic, long lasting protection

Jotun's objective is to ensure that an owner obtains a long life for a vessel. Jotun achieves this goal by identifying and satisfying the particular needs of each of its customers.

The correct choice of paint system is one of the most decisive factors in determining the life of the vessel and in achieving long term, efficient, economic operation. This brochure describes the key factors in achieving good surface preparation and sound application. It describes the most frequently specified Jotun products and typical paint systems for different substrates. There are many more specialist protective products in the Jotun range. For information please ask your local Jotun representative.

Jotun – a commitment to quality

Jotun's modern UK factory complex in North Lincolnshire has an annual production capacity of over 25 million litres. It is Quality Standard BS 9001 accredited and has gained ISO 14001 and OHSAS 18001 for its Health, Safety & Environmental Management.

The Jotun UK factory

For the owner/operator of working boats and for yards throughout the UK, Jotun provides a range of marine coatings that meet the most demanding requirements together with in-depth customer support, assistance and advice.

With factories and offices in more than 70 countries Jotun is recognised as one of the leading manufacturers and suppliers of sophisticated coatings to the world's merchant fleets. Throughout the life of a vessel, Jotun is on hand to offer the best technical advice and assistance to achieve the most effective and economic coating protection and performance.

Start with surface preparation – the foundation of a durable, effective paint system

If the surface to which the paint is to be applied is not prepared correctly, then the paint system is doomed to failure. Time spent in careful preparation of the substrate is an investment for the future and this will pay substantial dividends later. The following information is a guide only. To ensure you understand the preparation requirements prior to application of a Jotun product, consult the instructions on the tin, read the Technical Data Sheet and Material Safety Data Sheet. If you have any doubts, consult your local Jotun representative.

Washing

Surface contaminants, such as dirt, grease, salt etc., if left on the surface will seriously affect the life of the coating. This will result in poor adhesion, detachment and possible blistering of the paint.

To ensure these contaminants are removed all surfaces must be high pressure washed with fresh, clean water to a minimum of 230 bar/3000 psi.

Oil and grease contamination requires thorough detergent cleaning prior to fresh water washing.

Areas of heavy marine growth may require hard scraping prior to washing.

Ensure the surrounding work areas are clean and dry in order that contaminants cannot be blown or fall back on to the prepared surface.

Front cover photograph, top centre, courtesy Bodies of Banff.

Mechanical preparation

Power tool cleaning with a mechanical wire brush, disc grinder or scaling machine may be used to remove scale and damaged paint back to bare metal.

Power tool cleaning must be to a minimum standard St2 (ISO 8501:1988) and 'feathered' back to the surrounding sound coating. This is necessary in order to avoid a 'ridge' being created between the exposed steel and the surrounding coating.

When completed, care must be taken to ensure that any dust created by this process is removed prior to application of the new paint.

It is essential that a 'surface tolerant' type primer designed for overcoating power tool prepared surfaces is used (see Jotamastic range).






Waterjetting

This surface preparation method employs fresh water under UHPWJ (Ultra High Pressure Water Jet) (from 680–1700 bar/10,000–25,000 psi). It is extremely effective in removing rust and old coatings and will achieve a degree of cleanliness similar to that obtained with dry blast cleaning.

The process has the advantages of removing soluble salts from the surface and, unlike dry blast cleaning, it will not create dust. The surface roughness will not be increased but will reveal the existing surface profile. Flash rusting will form on the prepared steel but this will not be a problem if a suitable 'surface tolerant' primer is then applied (see: Jotamastic range).

Slurry blast

A disadvantage of hydroblasting is that the roughness of the surface is not increased. To achieve this condition, an abrasive can be added to the high pressure water jet. The resultant 'slurry blast' provides the advantages of soluble salt removal and dust suppression. It is very important to ensure that any abrasive left on the wet substrate is removed.

Dry blast

Some paints require a surface profile roughness (anchor pattern profile) on the substrate. This will be achieved with dry blasting. Abrasive particles are fed into a high pressure jet of compressed air which is directed at the surface of the substrate.

A variety of abrasives can be used – steel shot, copper slag and aluminium oxide, each providing a different profile. Selection of a particular abrasive will achieve the particular surface profile required for a specific product. Special 'copper-free' abrasive must be used if blasting aluminium.

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Care in application – the right product on the right surface at the right film thickness in the right conditions

Stripe coating – ensures vulnerable areas are fully protected

Paint, being liquid, will flow naturally from an edge to a flat surface. Therefore, during application the full recommended wet paint film thickness will not be achieved in certain difficult areas. These include edges, weld seams, rivets, recesses such as rat holes etc. To ensure these vulnerable areas receive the specified film thickness, additional paint must be applied. The proven successful method is the application of an additional coat or 'stripe coating'. This must be applied by brush to these areas before application of each full coat. The importance of this stripe coating cannot be over emphasised.

The importance of stripe coatings cannot be over emphasised

Roller/brush application

Most paints can be applied by roller or brush, although this should be limited to small areas.

The pattern resulting from roller application will not provide the even coating achieved by spray application and therefore great care must be taken to ensure a continuous film is applied. Where airless spray equipment is not available for the application of the first coat of the system, the alternative method of brushing is preferred. It must be appreciated that the film thickness of a roller/brush application will be limited and therefore more than one coat may be necessary to achieve the desired film thickness.

Spray application

The preferred method of application is 'airless spray' where pressure is used to atomise the paint. An alternative method is 'conventional spray' where compressed air atomises the paint. This method is not suitable for all paints. The correct application methods for each product are contained in the product Technical Data Sheet.

Spray application is the most effective method of application. It improves aesthetic appearance, productivity is high, it allows high film thickness to be applied in one coat and gives a more even film thickness.

Climatic conditions

Ensure the substrate temperature remains above that of the minimum temperature required for the paint to dry or cure. This information can be found in the Technical Data Sheet.

When humidity is high i.e, >85%, solvents evaporate slowly and this will affect the drying process. Painting when humidity is above 86% is not recommended.

Dew point is the temperature at which the humidity condenses on a surface. Before and during application and curing, the substrate temperature must be a minimum 3ºC above the dew point.

Wet film thickness

Most paints contain solvent and as this evaporates during the drying process, the applied wet film thickness (WFT) will reduce. It is important that the paint is applied at a sufficient WFT to ensure the resulting dry film thickness (DFT) meets the specification. The corresponding WFT to DFT is shown in the product Technical Data Sheet.

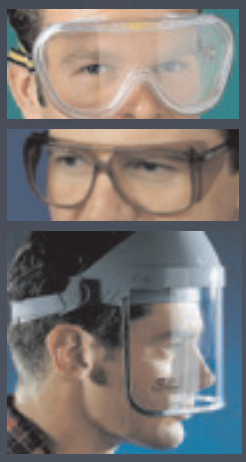
Wet film readings, using a wet film thickness gauge, must be taken during application to establish if the correct amount of paint is being applied.

Technical Data Sheets can be viewed on the Jotun website:

www.jotun.co.uk

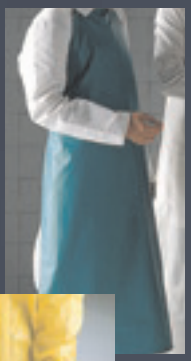
Taking care of yourself – Health & safety are important!

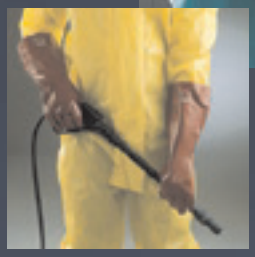
Always wear cotton underwear and overalls. Nylon may create sparks from static electricity.



Protect against paint splashes with full eye protection – goggles with side shields, face shield or safety glasses.

If there is a risk of splashing with large quantities of solvents wear a solvent resistant rubber apron.





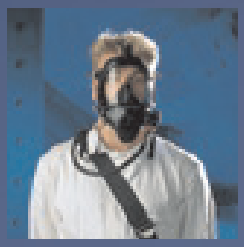
When handling or applying coatings wear PVC or nitrile rubber gloves to avoid skin problems as solvent can cause the skin to dry and crack. Gloves beat barrier creams!

Wear ear protectors where daily exposure to equipment used in the painting process reaches 85dB(A). There are actions where daily levels reach 80dB – check first!

Wear protective antistatic, steel capped safety boots.

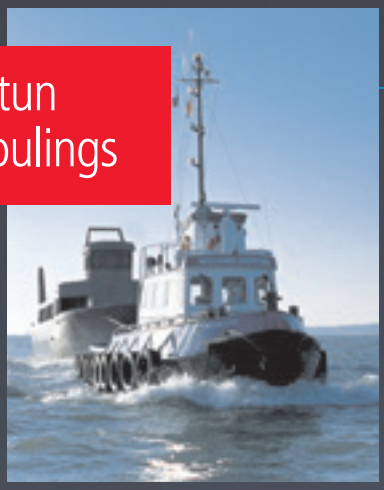
Hard hats are normally obligatory.

REMEMBER!
Keep walkways clear.
Reduce any fire hazard.
Keep emergency exits clear.
No alcohol! No smoking!



Choose respiratory equipment in accordance with local ventilation, type of paint and operation.

Jotun Antifoulings



THE SEAQUANTUM RANGE

Following its introduction in 2000 the SeaQuantum range has claimed a position as the ultimate in fuel saving and protection from fouling.

The silyl technology of SeaQuantum has the following key properties:

- Controlled and linear polishing
- Low build-up of leached layers
- Better protection against mechanical damage
- Unrivalled track record on fuel performance

The SeaQuantum products described here are those most suited to UK waters. For details of complete SeaQuantum range, ask your local Jotun representative.

SeaQuantum Classic

TBT-free selfsmoothing and selfpolishing antifouling for vessels trading at medium speeds where the selfpolishing process, without any build-up of leached layers, ensures peak performance in even the most fouling intensive waters. Optimum fuel consumption is secured by the selfsmoothing mechanism.

SeaQuantum Ultra and SeaQuantum Static

TBT-free selfpolishing antifouling. The specially formulated biocide package is designed to provide excellent antifouling performance for vessels trading at low speeds and static exposure.

SeaOmega

SeaOmega has been specially designed for vessels trading in cold water with the objective of achieving the key benefits of no fouling and no build-up of leached layers whilst maintaining a constant rate of polishing.

SEAMATE

Linear polishing contributes to a constant release of biocides – a prerequisite for reliable antifouling performance over the lifetime of the system. SeaMate leverages the benefits of the silyl technology in a product optimised for reliable long-lasting protection – helping customers to maintain speed and schedule.

Parallel testing under controlled dynamic conditions has demonstrated the controlled and linear polishing of this new SeaMate technology. All antifoulings release biocides causing the formation of a leached layer – SeaMate delivers thinner leached layers than competing products. It enables long-lasting protection by balancing the polishing rate and leaching rate of biocides.

Silyl technology provides great mechanical strength and shorter drying time. Greater mechanical strength reduces the risk of unscheduled maintenance. Also, when compared with competing products SeaMate is a significantly harder coating.

SeaQuantum is optimised for fuel performance and has an unrivalled track record – it achieves average hull roughness over time that is unchallenged by any other antifouling. SeaMate is optimised for reliable, long lasting protection with some fuel performance benefits using SeaQuantum based technology.

SeaOmega designed especially for cold waters

Silyl Acrylate Coatings – state of the art antifouling technology currently dominated by SeaQuantum – have a more predictable hydrolysis function than ordinary SPCs with hydrolysis by ion exchange.

SeaMate's volume solids are 55%, it can be applied in two coats of up to 175µm DFT each to provide reliable protection for 60 month drydocking schedules. The benefit is shorter time in drydock and reduced paint application cost.

THE SEAFORCE RANGE

The SeaForce range is an established and world proven assortment of quality antifoulings. The introduction of improved SeaForce 60 and SeaForce 90 provides even more efficient fouling protection, the leached layer is reduced by up to 50% which, together with the better effect of the biocides, gives improved performance.

SeaForce 60

The versatile and predictable solution. Optimised cost/performance ratio. With up to 60 months good antifouling performance on selected vessel areas.

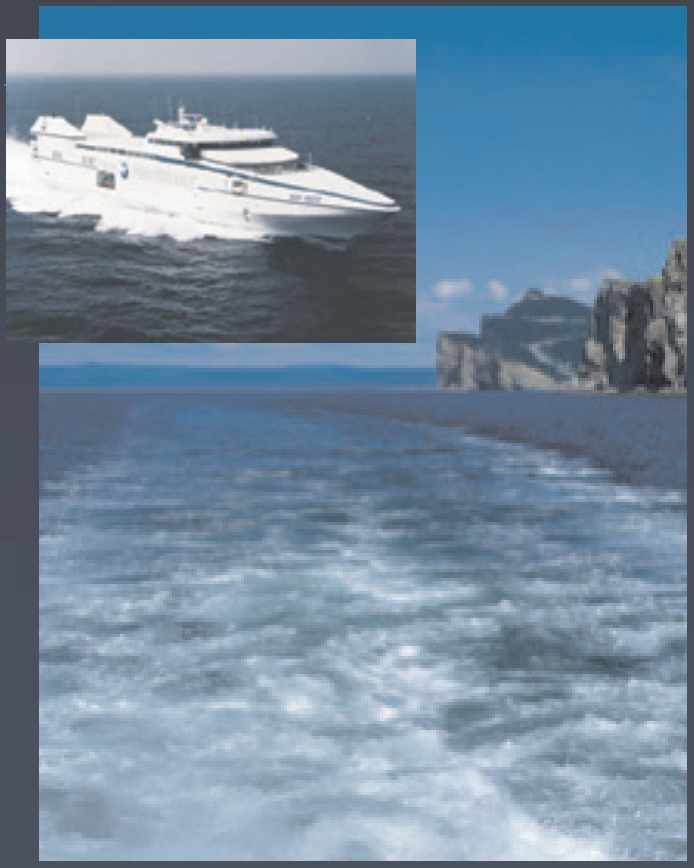
SeaForce 30

The economical solution. Where cost is the key factor. With up to 36 months good antifouling performance.

COMPLETING THE JOTUN ANTIFOULING RANGE

Super Tropic

SuperTropic is a TBT-free conventional antifouling, IMO Anti-fouling System Convention compliant, for wooden or steel hulls for vessels operating in in coastal service.

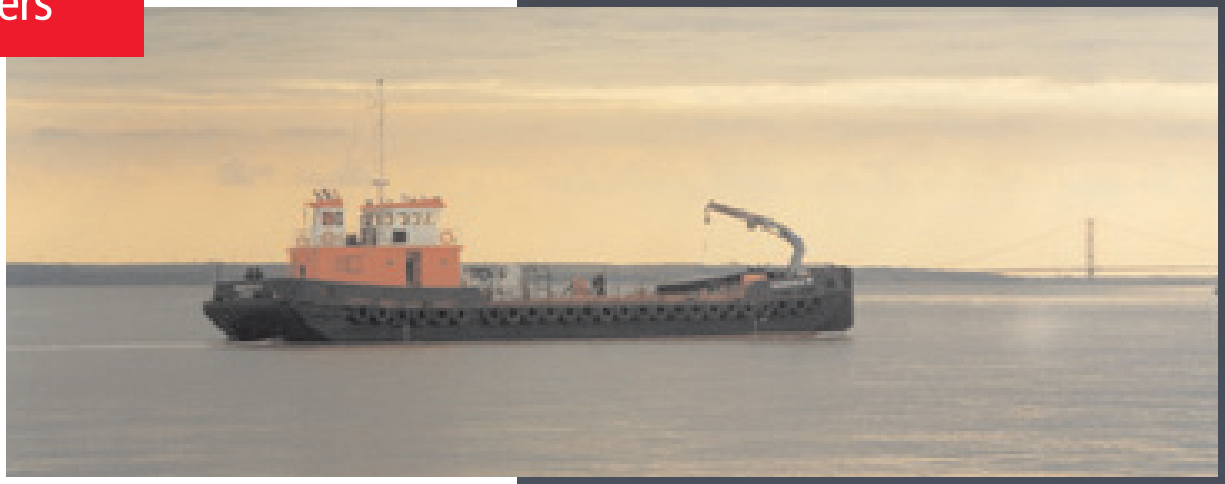


FOR INLAND WATERWAYS

Jotamastic 87 Black

Jotamastic 87 Black is the preferred and proven choice for the protection of hulls of vessels plying the UK's inland waterways. This epoxy mastic coating provides unrivalled penetration, excellent adhesion and moisture tolerance. Being high build, it provides a flexible, abrasion resistant and impermeable barrier protective coating of outstanding, long lasting durability.

Jotun Primers



Primer choice – where application of a successful protective paint system begins

Primers are used in order to achieve corrosion protection of the steel surface. Primarily, primers act as a barrier protection by preventing water and oxygen reaching the surface and thereby preventing the corrosion process from taking place.

When selecting a primer system, there are many elements to consider:

- Corrosion protection properties
- Mechanical protection properties
- Adhesion to substrate
- Type of substrate
- Pre-treatment of substrate
- Adhesion of topcoat to the primer
- Application properties and drying time
- Resistance to chemicals and abrasion
- Health & Safety

The products described here are a selection of the most frequently specified Jotun products for working boats – all tried, tested and proven in-service. For details of the full Jotun range of marine coatings, ask your local Jotun representative.

THE JOTAMASTIC RANGE

With a wide range of Jotamastic products, each with its own individual benefits, cost saving, time-saving protection can be tailor-made to meet every need.

Jotamastic 87

Jotamastic 87 has a track record of success –more than 20 years as the leader in advanced epoxy mastic technology. It has proven to be the first choice for lasting protection in the most severe environments.

The high volume solids (82–87%) allows application up to 300µm dry film thickness in a single coat – this means exceptional protection with fewer coats and greatly reduced application costs.

Jotamastic 80

Jotamastic 80 provides all the benefits of Jotamastic 87 and the same excellent protection but at lower dry film thicknesses. With its high volume solids (80%), it has been designed to be applied from 75 to 150µm in a single coat.

Jotamastic 80 is built on the same technology platform as Jotamastic 87, utilising an unrivalled track record of success to widen the opportunities to tailor-make Jotamastic protection to specific needs.

This deck was in poor condition. After water jetting to remove rust and dirt, spot blasting where necessary and high pressure washing with fresh water, Jotamastic 87 was applied prior to the topcoat.

The management company said "Some of the work was carried out at sea in less than ideal conditions, but despite this the coating has stood up well with the only areas of breakdown being due to mechanical damage."

Jotamastic 87 Aluminium / Jotamastic 80 Aluminium

Extra protection in extreme environments is provided by the aluminium flakes.

Jotamastic 87 Aluminium and Jotamastic 80 Aluminium are designed for environments where extreme protection is required.

Aluminium flakes within the coatings create an impenetrable barrier to water and increased coating flexibility. The epoxy binds the coating together to give it considerable strength particularly when applied to vulnerable areas.

These products are suitable where surface preparation is not ideal and good lasting protection is required against extreme atmospheric conditions. They have exceptional water resistance and are particularly suitable for submerged areas creating an impenetrable barrier to water and increasing flexibility. It is particularly suitable where surface preparation is not ideal and good lasting protection is required against extreme conditions.

Vinyguard Silvergrey 88

Vinyguard Silvergrey 88 is a quick drying, non tar modified vinyl primer. It can be used as a primer under vinyl, chlorinated rubber and alkyd coatings for steel, both above and below the waterline. It can be used as a touch-up primer and as a tie-coat prior to application of antifoulings.

Alkydprimer

A primer for steel structures as part of an alkyd system. Dries quickly and is resistant against dry heat up to 120ºC. Provides good adhesion to correctly pretreated aluminium.

Jotamastic – proven worldwide

"It has always been our objective to save cost, in terms of maintenance time, and yet achieve a better paint maintenance system for our vessels. The upgrading of our maintenance system, which includes Jotamastic 87, has being implemented successfully with the significant assistance from Jotun's technical service personnel. To date, our ship officers are very satisfied with the excellent performance of the paint systems.

Best Regards
Florence Ang
Pacific International Lines (Pte) Ltd

Jotun Topcoats

Hardtop XP

Setting new standards. The high solids, high performance polyurethane topcoat

Hardtop XP is the result of intensive development by Jotun to meet future global VOC regulations. It sets new standards for a high performance polyurethane topcoat. With high volume solids of 63%.

The Hardtop XP has high volume solids (63%). It is very robust with a high degree of predictability ensuring an excellent result every time. The finish is glossy with good float and hiding power. It has good melting properties and 'overlap zones' will be less visible compared to traditional polyurethanes. A high level of tolerance to high wet film thickness gives better results, especially when difficult objects are coated with airless spray.

Hardtop XP has excellent spray properties with less dry spray. The benefits this provide include a better finish, a cleaner environment and a reduced loss factor as less paint is consumed and application is easier and more efficient.

Hardtop XP has quickly established itself as an applicator's favourite.

High solids mean lower VOCs, fewer coats, lower application costs, less downtime.

The high dry film thick thickness tolerance of Hardtop XP is especially appreciated by painters. It is not technically possible to achieve an even dry film thickness on the different angles and corners in many areas. Being aware that Hardtop XP is one of the most tolerant products in its category adds to the painter's confidence.

Case History: Irish Ferries

Irish Ferries vessel 'Ulysses' was built at Aker-Finnyards, Rauma in 2000. Hardtop Flexi was applied to the hull and decks.

"We are satisfied with its performance and impressed with its colour and gloss retention. We particularly value the fact that the product is a surface tolerant primer and finish coat which greatly reduces on board inventory and simplifies maintenance…also reduces documentation/administration for both on-board and drydock specification and execution"

John Reilly, Operations Director

beauty and protection combined

Hardtop Flexi

High standards of flexibility, durability gloss and colour retention

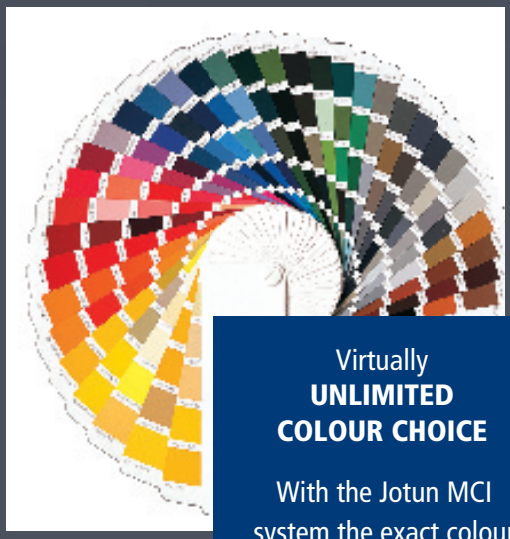
Hardtop Flexi introduced technology that brought new standards of flexibility, durability and cosmetic excellence to vessel protection and appearance.

Tests have dramatically demonstrated the remarkable flexibility of Hardtop Flexi and its ability to resist damage to paintwork from the influence of high impact. These tests are supported by the successful results of 5 years' practical in-service use, ashore and afloat.

Hardtop Flexi is a high solids (64% by volume) high quality polyurethane topcoat with excellent wetting and adhesion properties. Designed with a gloss level that provides 'forgiveness' – hiding imperfections and unevenness in areas of steel – it matches the colour and gloss retention expected of a polyurethane topcoat and maintains a semi-gloss appearance for extended periods.

Benefits include low VOCs, application of single coats up to 150 micron, fast drying properties and impact resistance.

Queen Mary 2 – Jotun topcoat beauty



Virtually
UNLIMITED COLOUR CHOICE

With the Jotun MCI system the exact colour of your choice is readily available whichever Jotun topcoat you have specified

Other topcoats

Penguard FC

A high build, two component polyamide cured epoxy coating. Penguard FC is for use as an epoxy finish coat when the cosmetic appearance of an epoxy finish is acceptable. Gloss retention is fair and water, abrasion, solvent and chemical resistance are very good.

Pilot II

A glossy alkyd based topcoat in a traditional alkyd system. Good gloss retention and weather resistance. When used on steel, as indicated above, the system is certified for low flame spread properties. It can also be used on woodwork.

Pioner Topcoat

For application on all external steel structures which are subject to atmospheric exposure. It dries by evaporation of the solvents and it can be used at low temperature and is permanently resoluble. Provides very good adhesion when overcoated with corresponding types of paint.

Special products designed to improve economy, performance and safety

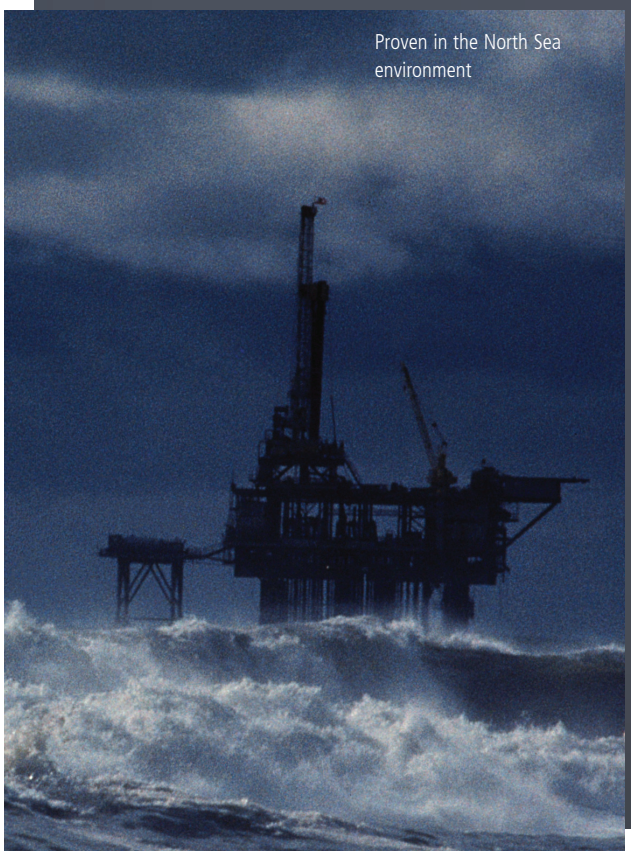
Jotamastic range

Time saving, all round protection.
Minimises pretreatment costs.
Fewer coats. Faster application.
Quicker upgrades.
Recoating time reduced.

The world's best known maintenance coating includes the following specialist coating:

Jotamastic 87 GF

With all the cost saving benefits of Jotamastic 87, it contains glassflakes within the coating which overlap, blend and bind together to provide a tough, virtually impenetrable film. Apply to surfaces prepared to St 2 or lower, saving time when it counts.



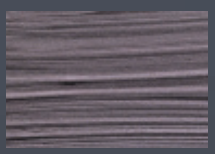
Proven in the North Sea environment

Jotamastic Smart Pack

- Doubles protection with brush and roller – achieves the required film thickness – provides optimum protection.
- Improved flow properties mean improved film consistency.
- Improved flow properties mean a smoother, better protective film.
  - Two same size 5 litre tins.
  - Component A with red lid.
  - Component B with blue lid.
- No mix up of components.
- Simply mix together 1:1 and in 10 minutes you're ready to apply.
- You mix what you need. What you mix is what you use – wastage reduced by up to 60%+.
- Easy to follow visual mixing instructions on both lids.
- Easy to handle, less storage space, reduced inventory and less waste handling.

Improved flow properties mean a smoother, better protective film

The top photograph shows the application of a regular epoxy primer. The thickness of the paint is uneven due to its poor flow characteristics. As a consequence the recommended film thickness may not have been achieved in the 'valleys' between the brush marks.
The lower photograph, brush application of Jotamastic Smart Pack, clearly illustrates the smooth consistent paint film achieved – ensuring the recommended film thickness.



Regular product

Jotamastic Smart Pack

Brochures are available describing the Jotamastic range, Jota Armour AS and the Balloxy HB range, in detail. Please ask for your copies.

Jota Armour Anti-Slip

Single coat, high build,
wear resistant and easy to apply.
Excellent anti-slip properties
in wet, dry and oily conditions.

Jota Armour

Applied as a single coat over Jotamastic 87. This easy to apply, high build, surface tolerant epoxy based coating provides a consistent, pre-calculated rough texture. Its texture gives excellent anti-slip properties whether the conditions are dry, wet or oily. Jota Armour is a three-component coating which when mixed contains a suspended blend of abrasion resistant, fused, aluminium oxide. Designed for application by simple to use, low cost equipment as a single coat. It is time efficient and low labour efficient and therefore ideal where long term shutdown is costly or not possible.

Jota Armour has been independently tested under Defence Standard 80-134 and has been granted 'Flight Deck' approval by the MOD for use on Royal Navy vessels.

A cold climate version is available.

Balloxy HB Light

Specially for ballast tanks.
No in-service claims where
Balloxy HB Light has been used.
Protects in excess of 70 million sq.m.
of ballast tanks.

Balloxy HB Light

Save on preparation, apply to disc, hand tool, water jetted or blast cleaned surfaces. Alternate light colours help the applicator to see, overcome poor paint coverage and simplify inspections.

Alternate colours for stripe coats on difficult areas ensures better protection. Apply by brush, roller or airless spray. Mixing control feature means Balloxy HB Light is correctly mixed, colour is constant and ready to use. Hiding control feature means Balloxy HB Light will not cover the surface until at least 100µm has been achieved. Two 150–200µm coats provide optimum protection. Being high build, up to 300µm DFT can be applied in one coat without sagging – thicker coats means fewer coats. Moisture tolerance enables application in damp conditions.

The products described here are a selection of specialist products suitable for working boats – all tried, tested and proven in-service.
For details of the full Jotun range of marine coatings, ask your local Jotun representative.

Typical paint systems

Steel vessels

SUBMERGED	PRIMER	COATS* DFT	ANTIFOULING	COATS* DFT
Conventional	Vinyguard Silvergrey 88	3 x 80 µm	SeaForce 30	
Epoxy	Jotamastic 80 Aluminium Vinyguard Silvergrey 88 as tie coat to antifouling or Jotamastic 87 Aluminium Vinyguard Silvergrey 88 as tie coat to antifouling	2 x 125 µm 1 x 50 µm 2 x 125 µm 1 x 50 µm	SeaForce or SeaQuantum or SeaMate or SeaOmega	Refer to Jotun for specification calculation to suit your vessel

ABOVE WATER	PRIMER	COATS* DFT	TOPCOAT	COATS* DFT
Conventional	Vinyguard Silvergrey 88 or Alkyd Primer	3 x 80 µm 1 x 40 µm	Pilot II gloss	1 x 40 µm
Epoxy/Acrylic	Jotamastic 80 or Jotamastic 87	1 x 200 µm 1 x 200 µm	Pioner Topcoat	1 x 50 µm
Epoxy/Polyurethane	Jotamastic 87 or Jotamastic 80	1 x 200 µm 1 x 200 µm	Hardtop Flexi or Hardtop XP	1 x 40 µm 1 x 40 µm

Wooden vessels

SUBMERGED	PRIMER	COATS* DFT	ANTIFOULING	COATS* DFT
Conventional	Vinyguard Silvergrey 88 1st coat thinned by 10% – No. 7 Thinner	3 x 75 µm	SeaForce or SeaQuantum or SeaMate or SeaOmega	Refer to Jotun for specification calculation to suit your vessel

ABOVE WATER	PRIMER	COATS* DFT	TOPCOAT	COATS* DFT
Conventional	Vinyguard Silvergrey 88 1st coat thinned by 10% – No. 7 Thinner	2 x 60 µm	Pilot II gloss	1 x 40 µm

VARNISHED	VARNISH	COATS DFT		
Single pack	Spontan Varnish	1–3 x 35 µm		
Two pack epoxy	Hardtop AS Clear	1–2 x 40 µm		

Aluminium vessels

SUBMERGED	PRIMER	COATS* DFT	ANTIFOULING	COATS* DFT
Epoxy	Penguard HB Vinyguard Silvergrey 88 as tie coat to antifouling	2 x 150 µm 1 x 50 µm	SeaQuantum	Refer to Jotun for specification calculation to suit your vessel

ABOVE WATER	PRIMER	COATS DFT	TOPCOAT	COATS DFT
Epoxy/Acrylic	Penguard HB	1 x 150 µm	Pioner Topcoat	1 x 50 µm
Epoxy/Polyurethane	Penguard HB	1 x 150 µm	Hardtop Flexi or Hardtop XP	1 x 40 µm 1 x 40 µm

* Jotacote Universal – New building only/Full blast only

GRP vessels

SUBMERGED	PRIMER	COATS DFT	ANTIFOULING	COATS DFT
Epoxy	Penguard HB Vinyguard Silvergrey 88 as tie coat to antifouling	2 x 150 µm 1 x 50 µm	As for steel See above	Refer to Jotun for specification calculation to suit your vessel

ABOVE WATER	PRIMER	COATS DFT	TOPCOAT	COATS DFT
Epoxy/Acrylic	Penguard HB	1 x 150 µm	Pioner Topcoat	1 x 50 µm
Epoxy/Polyurethane	Penguard HB	1 x 150 µm	Hardtop Flexi or Hardtop XP	1 x 40 µm 1 x 40 µm

TECHNICAL DATA

	Typical				Substrate Temperature at 23°C						
	Vol. solids ±2%	Flash Point ±2% (Setaflash)	Rec. Film Thickness Dry (microns)	Theo. Film Thickness Wet (microns)	Spreading Rate Theoretical m^2/ltr	Surface Dry Hours	Thorough Dry Hours	Cure/Dry For Launching	Dry to Recoat Minimum Hours	Thinner/Cleaner Number	Pot Life Hours
ANTIFOULINGS											
SeaQuantum Classic	47	26	75/150*	160/320*	6.2/3.1*	0.5 h	4 h	8–20 h	7 h	7	–
SeaQuantum Ultra	47	26	75/150*	160/320*	6.2/3.1*	0.5 h	4 h	8–20 h	7 h	7	–
SeaMate	?	?	?	?	?	?	?	?	?	–	–
SeaOmega	55	26	75/150*	135/290*	7/3.5*	0.5 h	4 h	8–20 h	7 h	7	–
SeaForce 60	58	30	75/150	130/260	7.7/3.8	0.5 h	4 h	10–20 h	7 h	7	–
SeaForce 30	58	30	75/150	130/260	7.7/3.8	0.5 h	4 h	10–20 h	7 h	7	–
SuperTropic	55	36	50/75*	90/135*	11/7.3*	0.5 h	16 h	8–20 h	8 h	2	–
BALLAST TANK COATINGS											
Balloxy HB Light	82	35	200	245	4.1	4 h	10 h	7 d	10 h	17	2 h
PRIMERS											
Alkyd Primer	52	36	40	75	13	2.5 h	6 h	–	16 h	2	–
Jotamastic 87	82	35	200	245	4.1	4 h	10 h	7 d	10 h	17	2 h
Jotamastic 87 WG	74	31	200	270	3.7	2.5 h	5 h	2 d	5 h	17	1 h
Jotamastic 87 Aluminium	87	40	200	230	4.4	4 h	10 h	7 d	10 h	17	1.5 h
Jotamastic 87 Aluminium WG	77	31	200	260	3.9	2.5 h	5 h	2 d	5 h	17	1 h
Jotamastic 87 GF	80	35	250	315	3.2	4 h	10 h	7 d	10 h	17	2 h
Jotamastic 87 GF WG	70	31	250	360	2.8	2.5 h	5 h	2 d	5 h	17	1 h
Jotamastic 80	80	35	100	125	8	4 h	10 h	7 d	10 h	17	2 h
Jotamastic 80 WG	72	31	100	140	7.2	2.5 h	5 h	2 d	5 h	17	1 h
Vinyguard Silvergrey 88	38	28	80	210	4.8	0.25 h	2 h	–	2 h	7	–
TOPCOATS											
Hardtop Flexi	64	25	80	125	8.2	1.5 h	4 h	7 d	3 h	10	2 h
Hardtop XP	63	30	60	95	10.5	3.5 h	7 h	7 d	7 h	10	1.5 h
Penguard FC	62	28	100	160	6.2	2.5 h	7.5 h	4 d	7.5 h	17	2
Pilot II	48	36	40	85	12	3 h	7 h	–	16 h	2	–
Pioner Topcoat	34	37	50	150	6.8	0.5 h	7 h	–	2 h	7	–
CLEAR COATS / VARNISHES											
Hardtop AS Clear	43	26	25	50	17.2	1.5 h	2 h	7 d	2 h	10	3 h
Spontan Varnish	41	36	35	85	11.7	1 h	4 h	–	8 h	2	–
ANTI-SLIP COATING											
Jota Armour	90	35	1000	1100	0.9	5 h	14 h	7 d	14 h	17	2 h
Jota Armour WG	84	35	1000	1190	0.85	3 h	8 h	4 d	8 h	17	1 h

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