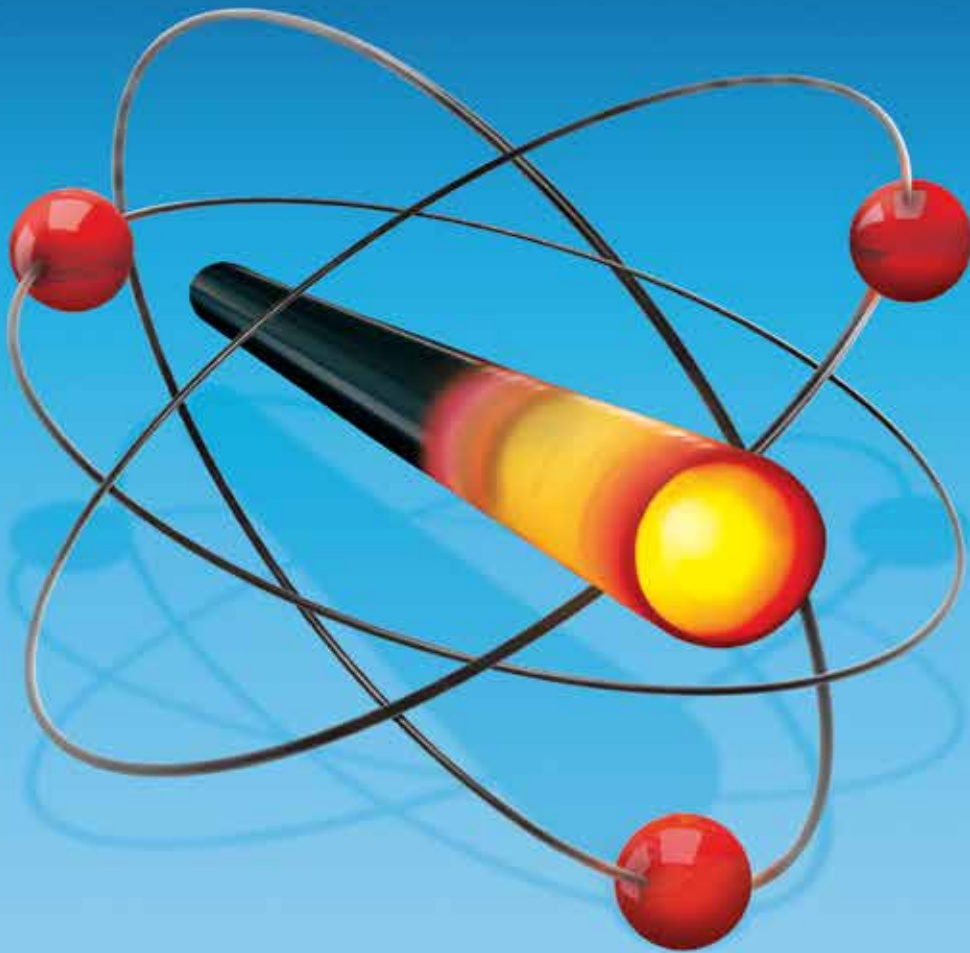




JOTUN

You raise the heat. We raise the protection.

High Operating Temperature Coatings



Jotapipe | HT

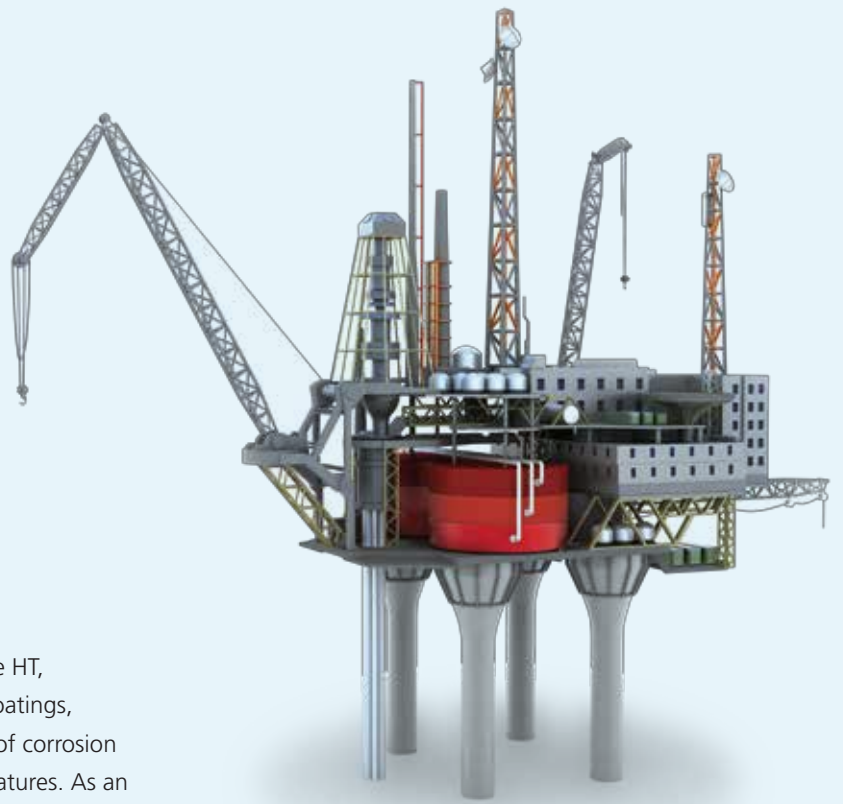
Pipelines protected

Powder Coatings

Pushing temperature boundaries one step hotter

Over recent years, changes in the Oil and Gas Industry drilling and transmission operations mean there is a growing need for Fusion-Bonded Epoxy (FBE) coatings that can adapt to different and varying service conditions whilst maintaining corrosion protection performance. Pipeline systems are increasingly transporting materials at hotter temperatures as pipeline owners cater for deeper drilling operations and more remote reserves, seek to prevent hydrate formation, minimise wax deposits and maintain low material viscosity.



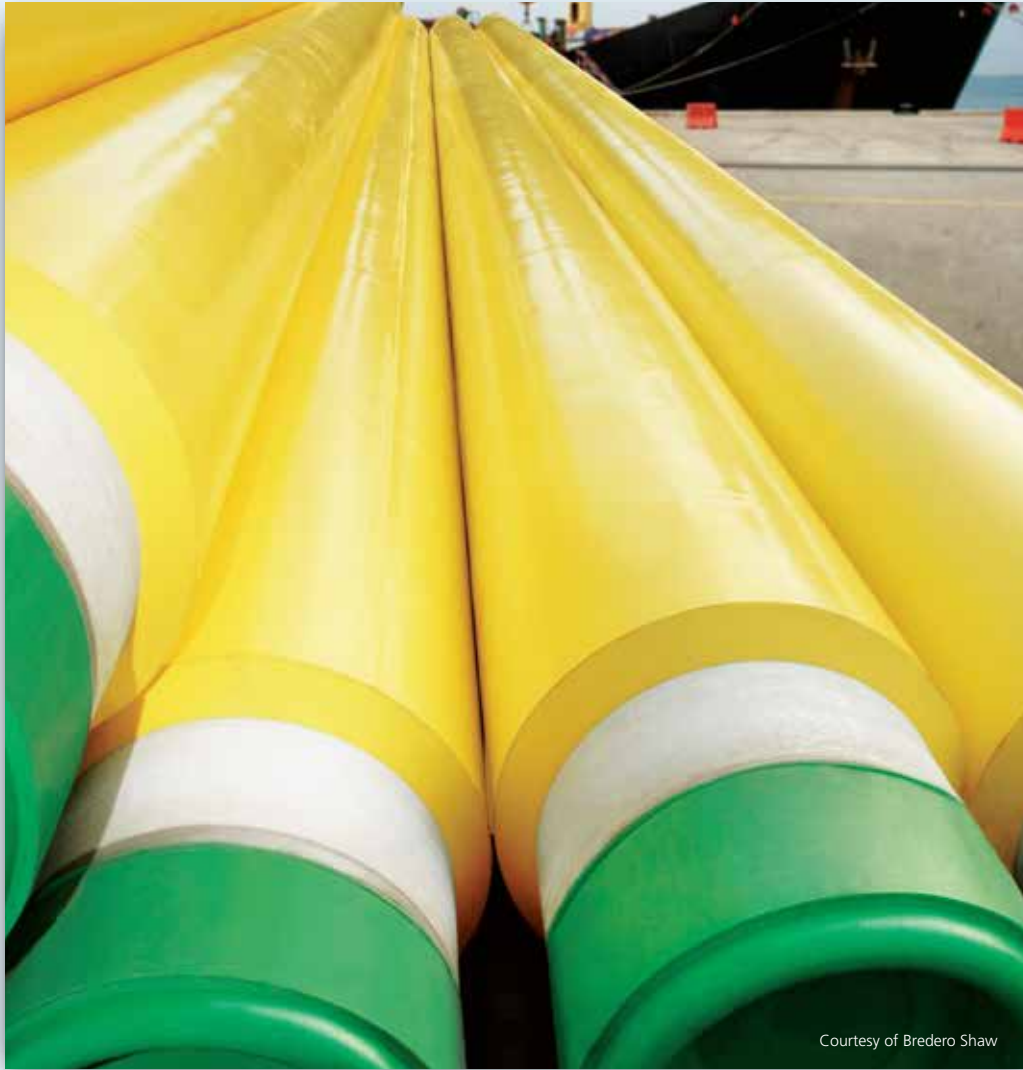


Jotun Powder Coatings has the answer with Jotapipe HT, a range of High Operating Temperature (HOT) FBE coatings, specifically designed to meet the exacting demands of corrosion protection of pipelines operating at elevated temperatures. As an anti-corrosion coating, standard FBE typically takes on temperatures up to 100°C (212°F), but Jotapipe HT raises the level of protection offered to 150°C (302°F).

The superior performance characteristics of Jotapipe HT help the industry to transport material at higher temperatures. This increases pumping efficiency, can eliminate compressor after coolers, improves flow efficiency and promotes flow assurance.

As market leader, Jotun Powder Coatings employs the latest technology to ensure that performance remains unsurpassed and unchallenged.





How it works

There are many factors that contribute to successful FBE coating performance and one of the most important attributes of FBE is glass transition temperature (T_g). When pipe wall temperature exceeds the T_g of the FBE coating, the binding polymer transforms from a hard and relatively brittle to a softer, rubber-like state. This involves a change in mechanical properties and increased permeability of the coating to moisture and oxygen. When FBE is used as a primer in 3-layer polyolefin coating systems, the residual stress in the polyolefin topcoat may cause loss of adhesion between the FBE and topcoat or at the steel-FBE interface, if the FBE coating is in its rubber-like state.

Jotapipe HT incorporates advanced technology that has allowed us to push the glass transition temperature boundary up to 150°C (302°F). The coating series meets all the requirements of major international pipe coating specifications and offers flexibility suitable for reel-lay barge application – a former barrier to the development HOT FBE coatings. These products demonstrate cure time of standard FBE coatings, which make them suitable for traditional spray application using existing coating lines.

Key benefits

True high glass transition temperature

Jotapipe HT pushes the glass transition temperature boundaries higher than ever before whilst maintaining a level of flexibility suitable for reel-lay barge operations. Traditionally, flexibility has been compromised in high T_g coatings, but not with Jotapipe HT.

Even when the heat is raised, Jotapipe HT retains all the anti-corrosion and mechanical protection properties that you are looking for in a FBE coating.

Cure time

Jotapipe HT exhibits standard FBE coating cure time, which ensures suitability for conventional spray application using existing coating lines.

Comprehensive product choice

With a choice of Jotapipe HT coatings suitable for pipelines operating at different temperatures, simply choose the one that best fits your pipeline temperature requirements.

Proven success stories

Since 1997, Jotapipe HT has successfully protected major pipeline systems all over the world. Jotapipe HT is field-proven. It has been tried, tested and it has succeeded.

Other benefits include:

- Tolerant to reel-lay barge methods
- Suitable for use as a girth weld coating



An eco-friendly solution

Every time you use Jotun products, you can rest assured that you are working towards a greener, more sustainable future. Being environmentally friendly, our powder coatings do not contain solvents, so no Volatile Organic Compounds (VOCs) are released into the air. Oversprayed powder can be recycled with minimal wastage, and disposal is easy and safe. In addition, all Jotun Powder Coatings' products are lead-free.

About Jotun

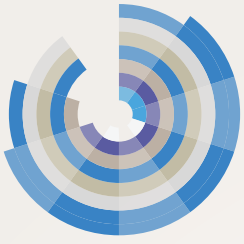
Jotun is one of the world's leading manufacturers of decorative paints, marine, protective and powder coatings. The group has 74 companies and 39 production facilities on all continents. Jotun products are available in 90 countries through own subsidiaries, joint ventures, agents, branch offices and distributors. At Jotun Powder Coatings, we are committed to develop, produce and deliver solutions that create value through consistency in application, enhanced appearance and superior durability.

A partner you can trust

Jotun Powder Coatings is here to partner with you and meet your specific project needs. We deliver more than just products - we bring you our unique Pipeline Concept. With the entire process in mind, we provide a comprehensive portfolio of coating solutions for the most demanding global environments. This is supported by our strong supply chain and a team that is ready to help you with any technical support you require 24/7, 365 days a year.

With an unbeatable range of products, a dedicated point of contact, and training and education facilities, the Pipeline Concept from Jotun Powder Coatings is the only pipe coating solution you need.





Product Portfolio

The Jotapipe HT range includes:

Product Name	System	Operating Temperature
Jotapipe HT 1020	Stand-alone ¹ /Primer ²	120°C (248°F)
Jotapipe HT 2005	Primer ²	120°C (248°F)
Jotapipe HT 1045	Primer ²	140°C (284°F)
Jotapipe HT 2004	Primer ²	150°C (302°F)

¹ Stand-alone FBE

² Primer for three-layer polypropylene systems

Products can perform at higher operating temperatures dependent on plant application, pipe configuration, coating system and local field conditions.



Outstanding track record

Working with someone you can trust is essential in the industry and we back that up with a proven track record of over 40 years protecting more than 130,000 km of pipelines.

As world leaders in the manufacture and supply of HOT FBE products, Jotun protects the deepest, hottest pipelines around the world.

The Jotapipe HT range is used by major oil and gas companies including Statoil, ExxonMobil, BP, Shell and Saudi Aramco.



Typical projects featuring *Jotapipe* | HT

Project Name	Country	Jotun Product	Length	Dia
Asgard Pipeline (Phases 1-3)	Norway	Jotapipe HT 2004	172 km	10-12 in
Kristin Pipeline	Norway	Jotapipe HT 2004	70 km	10-12 in
BTC Pipeline	Azerbaijan	Jotapipe HT 2005	502 km	30-42 in
Thundershorse Pipeline	USA	Jotapipe HT 2004	123 km	8-12 in
HFO Pipelines	Kuwait	Jotapipe HT 2005	241 km	20 in
Khuff Gas Pipeline	KSA	Jotapipe HT 1020	832 km	8-16 in
In Salah Gas Pipeline (Phases 1-2)	Algeria	Jotapipe HT 2004	258 km	8-16 in
Bien Dong 1 Pipeline	Vietnam	Jotapipe HT 1045	20 km	12 in
Sabah Pipeline	Malaysia	Jotapipe HT 2004	130 km	18 in
Hai Su Trang and Hai Su Den Pipelines	Vietnam	Jotapipe HT 1020	12 km	10-16 in
Umm Lulu II Pipeline	UAE	Jotapipe HT 1020	140 km	8-20 in
WO-16 Pipeline	India	Jotapipe HT 2004	250 km	8-13 in

Please visit our website www.jotun.com for more information.



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Jotun Protects Property