



Jotachar

JF750
mesh free

*Revolutionary mesh free
epoxy passive fire protection*

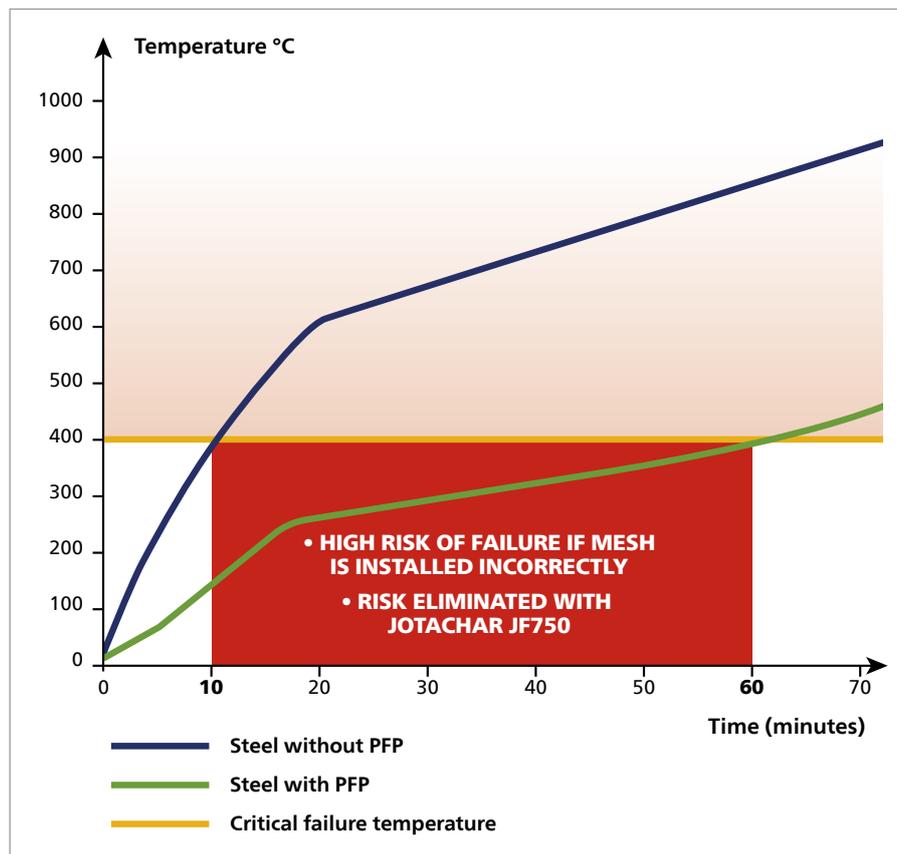


THE RISK

Offshore and onshore assets in the oil & gas industry are at risk from explosions and hydrocarbon fires. Without passive fire protection (PFP) measures, these incidents can escalate rapidly, leading to catastrophic loss of life, assets and inventory.

Steel strength reduces dramatically as temperature increases. Epoxy PFP systems are designed to prevent or delay collapse of the structure by reducing the rate of steel temperature rise.

Until now, the industry has depended upon epoxy PFP systems that require additional mesh reinforcement. To avoid any risk of failure when exposed to fire, reinforcement mesh must have been correctly installed in accordance with the product's certification.



THE IMPACT

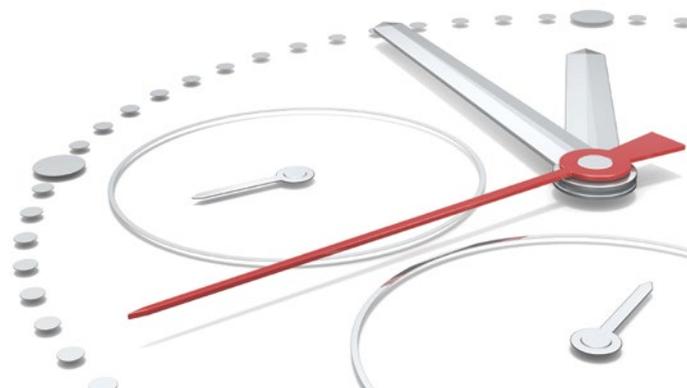
The consequences of incorrectly installing mesh could be devastating, leading to:

- Loss of life
- Serious incident escalation
- Blocked escape routes
- Loss of asset
- Environmental catastrophe
- Loss of inventory
- Huge financial impact on the asset owner

Complex mesh reinforced systems often result in project delays. Installation is a time and labour intensive process. Mesh installation involves stringent certification rules such as overlap measurement and installed depth within the system. Ensuring application of the mesh meets the system specification raises constant challenges related to speed of application especially on complex structures. Maintenance and repair are complicated, costly and time consuming.



Jotachar
the time saving solution



THE CHALLENGE

The industry's challenge has been to design an epoxy PFP for hydrocarbon pool and jet fire scenarios that removes the requirement for additional mesh reinforcement.

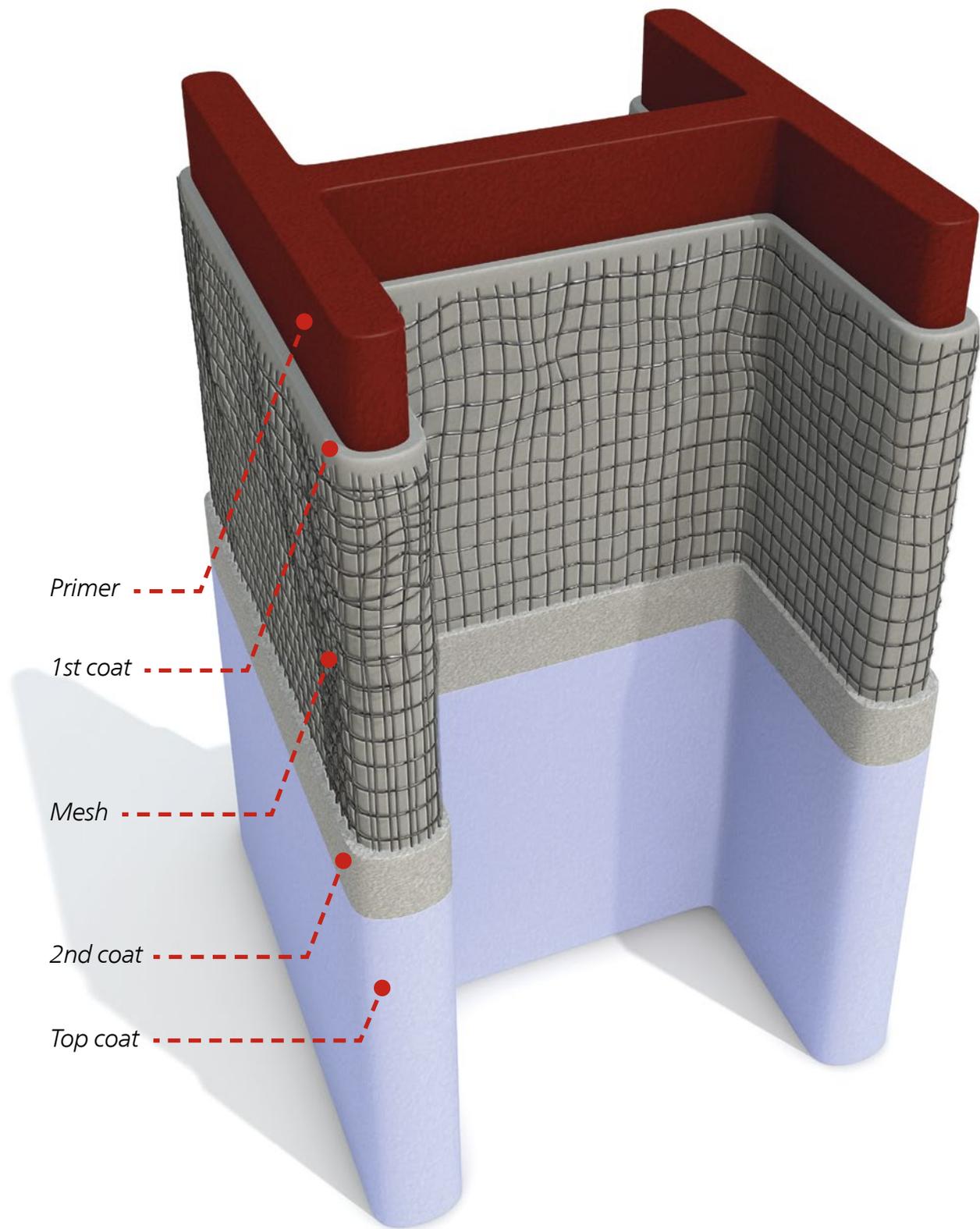
Mesh introduces inherent risks associated with incorrect installation of complex reinforcement.

There has been a growing demand for next generation mesh free technology designed to reduce installation time, cut material costs and *minimise risk*.



The challenge

Traditional Mesh containing Epoxy PFP



Traditional Mesh containing Epoxy PFP

COMPLEX, HIGH RISK APPLICATION

PROCESS	THE CHALLENGE
1 Check product certification rules for installation of the mesh-containing PFP	Complex and time consuming
2 Assemble sufficient manpower to apply both PFP coating and mesh	Availability and cost of manpower
3 Measure and cut mesh as required for the project fire scenario	Time consuming Risk of error leading to non-compliance
4 Determine the thickness required for the 1st coat of PFP to comply with mesh depth rules required for certification	Risk of error leading to non-compliance
5 Apply the 1st coat of epoxy PFP accurately to the correct thickness	Risk of error leading to non-compliance
6 Apply mesh ensuring it is embedded correctly into the 1st coat of PFP correctly rolling and trowelling as necessary. Ensure mesh overlap rules are followed	Risk of error leading to non-compliance and failure
7 Inspection hold for correct mesh installation	Crew downtime and project delay
8 Re-work of any non-conforming mesh installation.	Cost and project delay
9 Wait for product to cure, up to 12 hours	Crew downtime and project delay
10 Apply second coat of PFP often next day at the earliest	Crew downtime and project delay
11 Final inspection of PFP	

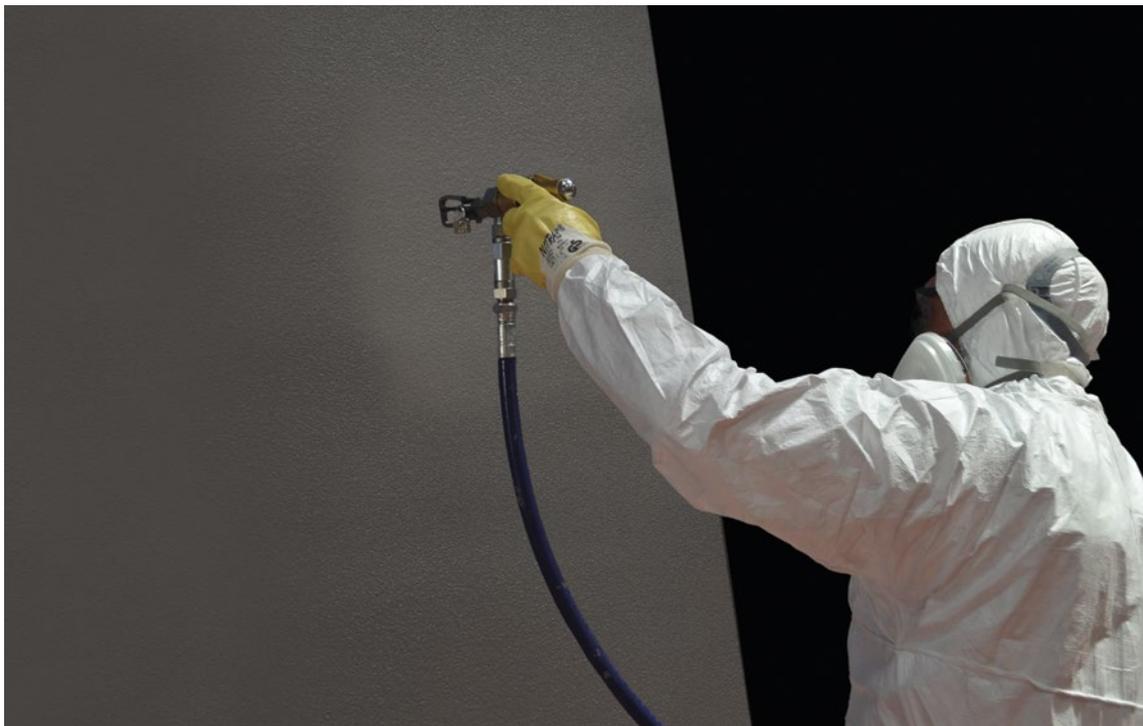
Mesh Free Jotachar JF750

CONSISTENT, RISK-FREE APPLICATION

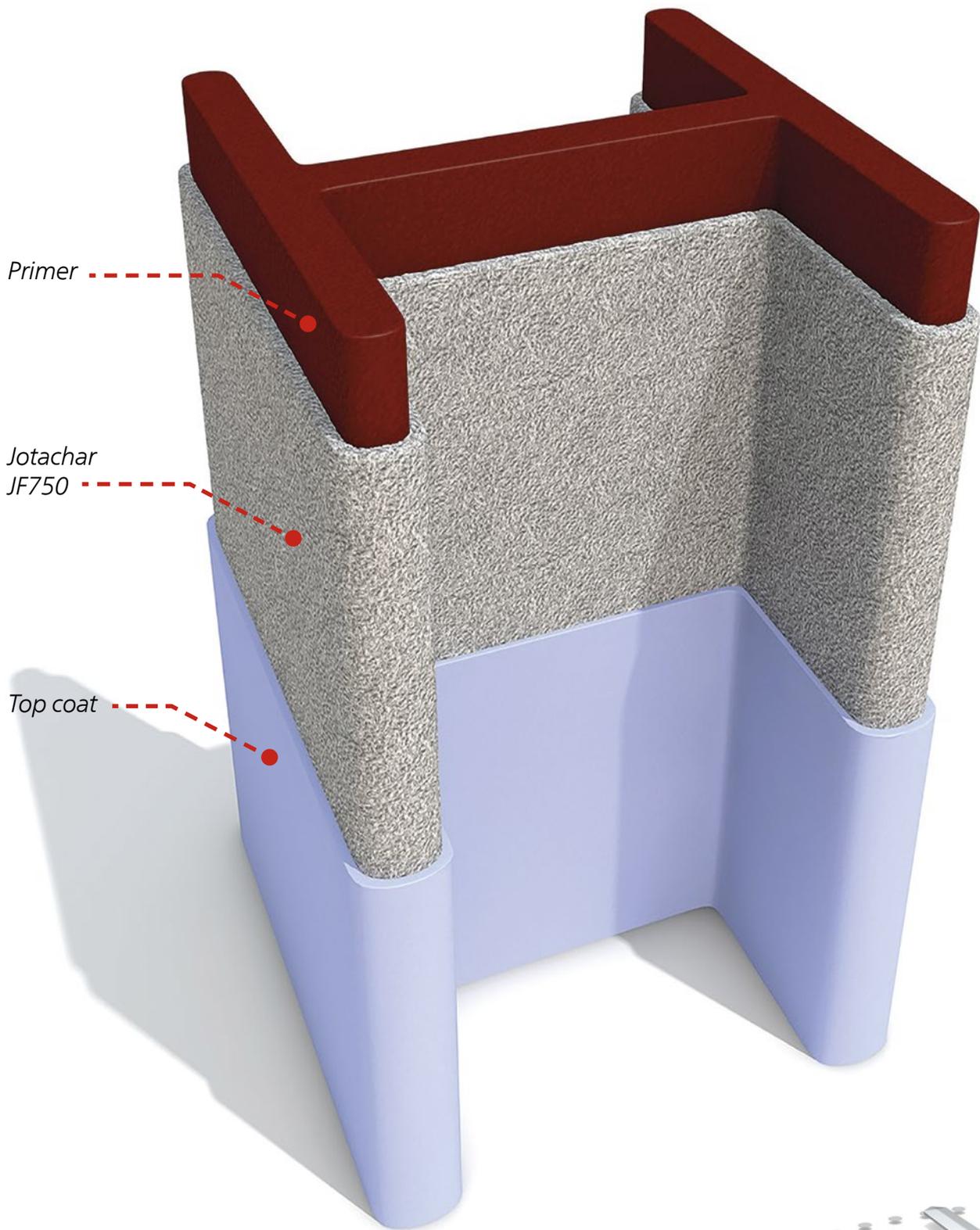
PROCESS

BENEFIT USING JOTACHAR JF750

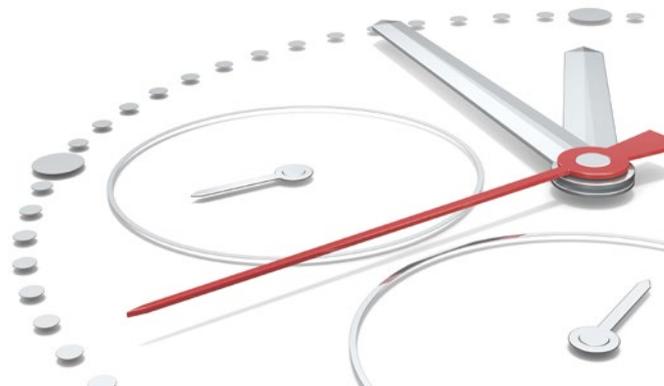
- | | | |
|----------|--|-----------------------------------|
| 1 | Check certification rules for PFP application | Establish PFP thickness only |
| 2 | Assemble sufficient manpower to apply Jotachar JF750 mesh free | Reduced manpower requirement |
| 3 | Continuous application of Jotachar JF750 | No stopping for mesh installation |
| 4 | Final inspection of Jotachar JF750 | |



Mesh Free Jotachar JF750



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THE SOLUTION

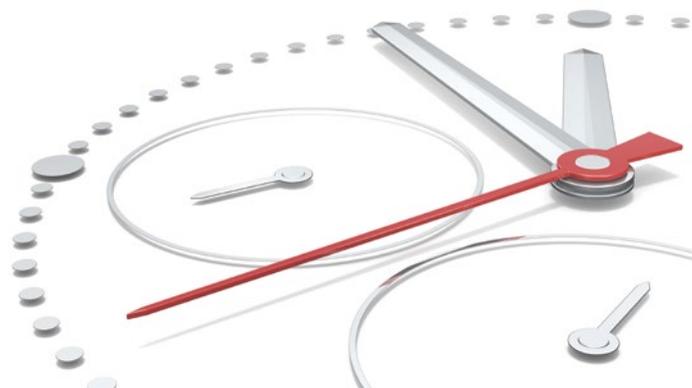
Jotun introduces Jotachar JF750, the industry's first mesh free next generation solution for hydrocarbon and jet fires. Jotachar JF750 incorporates an advanced fibre matrix, eliminating the need for complex mesh reinforcement. When exposed to a fire, Jotachar JF750 produces a robust and temperature stable insulating char whilst risks associated with incorrect mesh installation are eliminated.

Without the need for additional mesh reinforcement, installation time is significantly reduced, combined with the additional benefit of substantial material and labour savings for your project.



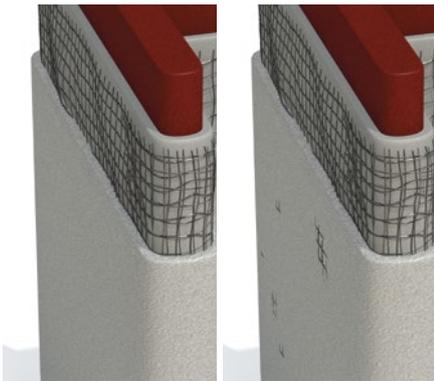
The solution

Jotachar
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MESH FREE – LESS RISK

NO MESH DEPTH RULES TO FOLLOW



Certification rules dictate that mesh reinforcement has to be installed at a specific depth within the PFP coating, typically at the middle. If the mesh is not installed at the correct depth, the applied system will not meet the requirements of the product's fire certification.

*(Left) Mesh embedded at the correct depth in the coating
(Right) Mesh embedded too close to the coating surface*

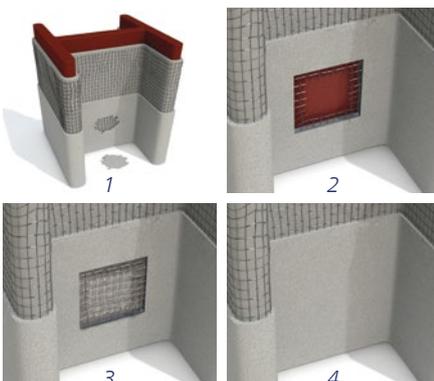
NO EPOXY PFP DETACHMENT FROM THE MESH LAYER



Incorrectly installed reinforcement mesh can significantly reduce the cohesive properties between the mesh and the final coat of epoxy PFP. This can lead to detachment and system failure in a fire scenario. Jotachar JF750's continuous mesh free application eliminates this risk.

← Poor installation of mesh with mesh exposed and detachment of the final coat

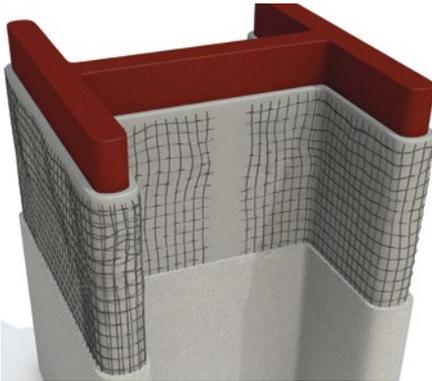
NO COMPLICATED REPAIRS OR UPGRADES



Mesh containing systems can be difficult to repair as the replacement mesh layer has to follow the same certification rules. For repair this means cutting back to expose undamaged mesh then overlapping with a new mesh layer. Should an area require a fire scenario upgrade, the mesh should be completely removed and replaced in accordance with the certification rules.

1. Damage repair required
2. Remove PFP back to primer, step back 2nd coat of PFP to expose sound mesh layer
3. Apply 1st coat of PFP, apply new mesh
4. Apply 2nd coat of PFP then topcoat

MESH INCORRECTLY INSTALLED OR OMITTED



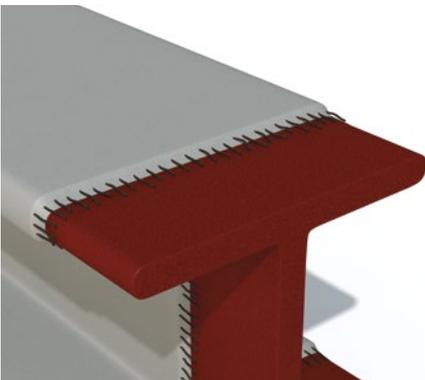
The mesh reinforcement has to be installed in accordance with strict certification rules depending on fire scenario.

Following system installation it is very difficult to observe if the mesh has been installed in compliance or installed at all.

Incorrect overlaps or lack of mesh will result in unpredictable fire performance.

← *Lack of overlap of mesh results in failure to comply with certification and risks unpredictable fire performance*

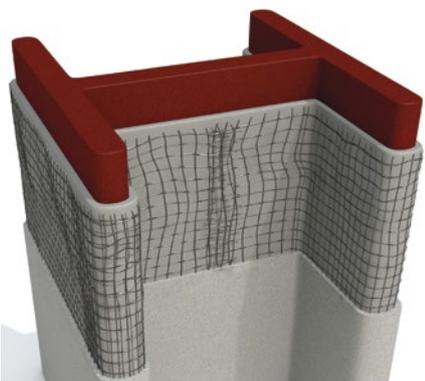
NO WATER INGRESS AT MESH TERMINATIONS



If system terminations are not completed correctly, mesh strands can protrude from the termination point. These exposed strands provide a path for moisture into the coating, leading to poor adhesion, water uptake and reduced fire performance through the life of the system.

← *Mesh strands exposed – offering a route for moisture to enter the coating*

NO MESH DETACHMENTS FROM OVERLAPS



At mesh joints, an overlap must be introduced according to certification rules. If the overlapping mesh is not correctly installed with adequate adhesion, the upper layer of mesh will lift. This will cause project delay due to rework of the mesh and the subsequent coats.

← *Poor adhesion at mesh overlaps – the result of incorrect installation and the source of delays and reworking*

JOTACHAR JF750 – THE TIME SAVING SOLUTION



Increased productivity –
no mesh installation



Faster project completion



Less downtime, no mesh
inspection points



Continuous application



Up to 60% reduction in
time and costs

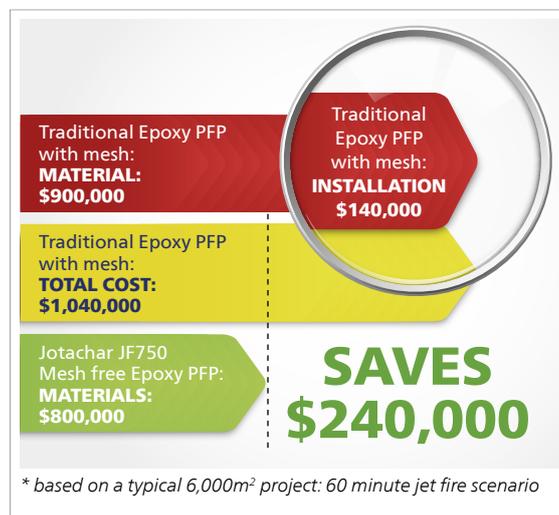


Potential one coat system
for 30 or 60 minute jet
fire scenarios

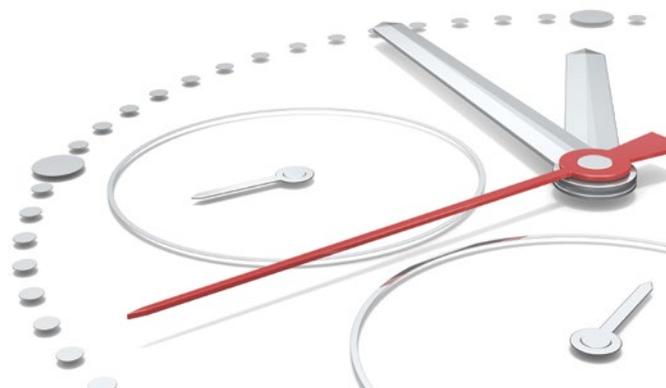
Jotachar JF750 mesh free benefits help owners, fabricators and applicators significantly reduce installation time, cut material costs and reduce risks compared to systems that require mesh reinforcement. The product also makes maintenance and repair much simpler, requiring significantly less time and cost.

Mesh containing systems require a larger installation crew to complete the project. In addition, more frequent inspections are required to ensure the complex mesh overlap and depth rules are in compliance with product and project certification rules. These factors will add time and cost to any project. With Jotachar JF750's continuous application process, projects are completed more rapidly, with significant saving in man hours and cost.

Jotachar JF750 is the only mesh free epoxy intumescent coating solution available to the market where jet fire protection is required for safety critical steel structures, divisions and vessels.



Jotachar
the time saving solution



TESTED, PROVEN, CERTIFIED

Jotachar JF750 has been extensively and independently tested to all the key industry standards and witnessed by Lloyd's Register of Shipping, providing confidence that long lasting fire performance is assured even in the most severe conditions.

The rigorous testing programme and independent product assessment undertaken by Jotun is recognised by all the leading classification societies such as; Lloyd's Register of Shipping (LRS), DNV (Det Norske Veritas), ABS (American Bureau of Shipping), BV (Bureau Veritas) and USCG (United States Coast Guard)

Description	Test method
Fire Resistance	
Jet fire structural	ISO 22899
Hydrocarbon fire resistance test – Structural	BS 476/ISO 834 UL1709
Hydrocarbon fire resistance – Divisions	BS 476/ISO 834 in accordance with IMO 754 (18)
Environmental	
Corrosion and durability	ISO 20340
NORSOK	M-501 Rev.6 System 5A
Smoke & toxicity	NES 711, NES 713
Flame spread	ASTM E84, BS 476 part 7
Physical Testing	
Hose stream test	NFPA 290
Tensile modulus, strength & strain	ASTM D638
Compressive modulus, strength & strain	ASTM D695
Flexural modulus, strength & strain	ASTM D790
Impact resistance	ASTM D2794
Shore D hardness	ASTM D2240
Blast overpressure	Confirming robust adhesion on structures and divisions when subject to extreme deflections or vibration
Thermal conductivity	ASTM C177
Specific heat	ASTM 1269



Fully compliant to
NORSOK M-501, Rev 6
with no reduction in fire
performance after exposure.



A GLOBAL PROVIDER OF COATINGS



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

We have 68 companies in 43 countries and 33 production facilities in 20 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.



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