Certificate no.:
TAF00001V9

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Structural Fire Protection

with type designation(s)
Jotachar JF750 XT - I section

issued to
Jotun A/S
SANDEFJORD, **Norway**

is found to comply with
DNV offshore standards

Application:

Approved for use as a system for fire protection of structural steel I sections.

Issued at **Høvik** on **2024-11-15**
This Certificate is valid until **2029-10-30**.
DNV local unit: **East & South Norway CMC**

Approval Engineer: **Helge Bjørnarå**

for **DNV**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

"Jotachar JF750 XT" – I section,
Composed of a system for fire protection of structural steel elements, I sections, consisting of a two-part epoxy primer ("Muki EPS") covered by a two-part epoxy intumescent coating ("Jotachar JF750 XT").

The material may be manufactured at the following locations:

- Jotun Paints (Europe) Limited, Scunthorpe, UK.
- Chokwang Jotun Ltd., Busan, Korea.
- Jotun Paints Co LLC, Muscat, Oman.

Application/Limitation

Approved for use as a system for fire protection of structural steel I sections.

The thickness of "Jotachar JF750 XT" system to be applied to avoid temperatures to rise on the steel substrate less than 200 °C, 250 °C, 300 °C, 350 °C, 400 °C, 427 °C, 450 °C, 500 °C, 538 °C, 550 °C, 600 °C, 620 °C, 650 °C, 700 °C and 750 °C for hollow sections, are given in appendix table 1-15.

The protective coating is not defined as non-combustible and should not be used in accommodation or in enclosed areas.

Mass density of "Jotachar JF750 XT":

Spray:	1.0 g/cm^3
Manual:	1.3 g/cm^3

The approval refers only to the fire resistance properties of the system.

All tests have been performed with nominal dry film thickness (DFT). Workmanship is subject for acceptance by the relevant authority of the project.

The application (spray and/or trowel) of the protective coating is to be performed in accordance with the manufacturer's application manual. Alternative primers and topcoats may be used provided they have been tested and approved by the manufacture.

Each product is to be supplied with its manual for application and maintenance

Type Approval documentation

Certification in accordance with Class Programme DNV-CP-0338, September 2021.

Application Guide Jotachar JF750 XT dated 14 April 2023 from Manufacturer.

Test report No. P100437-1015 Rev. 2 dated 10 November 2022 from BRE, Watford, UK.
Test report No. P100437-1022 Rev. 2 dated 15 November 2022 from BRE, Watford, UK.
Test report No. P100437-1029 Rev. 1 dated 15 May 2023 from BRE, Watford, UK.
Test report No. P100437-1030 Rev. 1 dated 11 May 2023 from BRE, Watford, UK.

Assessment report No. PFPS-PAR-2321A, Issue 02, dated 9 October 2023 from PFP Specialists, Suffolk, UK.

Report No. WR22-04099 dated 13 June 2022 from Al Futtaim Element Material Technology, Dubai, UAE.
Report No. RDR-22-0228(A) dated 16 June 2022 from manufacturer.
Report No. RDR-22-0228(B) dated 17 June 2022 from manufacturer.
Report No. N142DC0X dated 18 July 2022 from DNV, Dubai, UAE.
Report No. N142CDEV dated 18 July 2022 from DNV, Dubai, UAE.

Tests carried out

Tested according to BS 476: Part 20:1990 and Part 21:1987 with HC-curve according to ISO 834-3.

Marking of product

The product or packing is to be marked with name of manufacturer, type designation and fire-technical rating.

Periodical assessment

DNV's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Class Programme DNV-CP-0338, Section 4.

Appendix to certificate TAF00001V9

Table 1: Prediction table for thickness of “Jotachar JF750 XT” system for fire protection of I sections for a critical temperature of 200 °C.

Hp/A	Fire resistance time in minutes. Thickness in mm											
	15	30	45	60	75	90	105	120	150	180	210	240
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The thickness of material rounded up to the nearest Hp/A [m^{-1}] shall be used.
Hp/A = Ratio between Heat perimeter and cross sectional Area of the section, [m^{-1}].

Appendix to certificate TAF00001V9

Table 2: Prediction table for thickness of “Jotachar JF750 XT” system for fire protection of I sections for a critical temperature of 250 °C.

Hp/A	Fire resistance time in minutes. Thickness in mm											
	15	30	45	60	75	90	105	120	150	180	210	240
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The thickness of material rounded up to the nearest Hp/A [m^{-1}] shall be used.
Hp/A = Ratio between Heat perimeter and cross sectional Area of the section, [m^{-1}].

Appendix to certificate TAF00001V9

Table 3: Prediction table for thickness of “Jotachar JF750 XT” system for fire protection of I sections for a critical temperature of 300 °C.

Hp/A	Fire resistance time in minutes. Thickness in mm											
	15	30	45	60	75	90	105	120	150	180	210	240
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The thickness of material rounded up to the nearest Hp/A [m^{-1}] shall be used.
Hp/A = Ratio between Heat perimeter and cross sectional Area of the section, [m^{-1}].

Appendix to certificate TAF00001V9

Table 4: Prediction table for thickness of “Jotachar JF750 XT” system for fire protection of I sections for a critical temperature of 350 °C.

Hp/A	Fire resistance time in minutes. Thickness in mm											
	15	30	45	60	75	90	105	120	150	180	210	240
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The thickness of material rounded up to the nearest Hp/A [m^{-1}] shall be used.
Hp/A = Ratio between Heat perimeter and cross sectional Area of the section, [m^{-1}].

Appendix to certificate TAF00001V9

Table 5: Prediction table for thickness of “Jotachar JF750 XT” system for fire protection of I sections for a critical temperature of 400 °C.

Hp/A	Fire resistance time in minutes. Thickness in mm											
	15	30	45	60	75	90	105	120	150	180	210	240
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The thickness of material rounded up to the nearest Hp/A [m^{-1}] shall be used.
Hp/A = Ratio between Heat perimeter and cross sectional Area of the section, [m^{-1}].

Appendix to certificate TAF00001V9

Table 6: Prediction table for thickness of “Jotachar JF750 XT” system for fire protection of I sections for a critical temperature of 427 °C.

Hp/A	Fire resistance time in minutes. Thickness in mm											
	15	30	45	60	75	90	105	120	150	180	210	240
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The thickness of material rounded up to the nearest Hp/A [m^{-1}] shall be used.
Hp/A = Ratio between Heat perimeter and cross sectional Area of the section, [m^{-1}].

Appendix to certificate TAF00001V9

Table 7: Prediction table for thickness of “Jotachar JF750 XT” system for fire protection of I sections for a critical temperature of 450 °C.

Hp/A	Fire resistance time in minutes. Thickness in mm											
	15	30	45	60	75	90	105	120	150	180	210	240
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The thickness of material rounded up to the nearest Hp/A [m^{-1}] shall be used.
Hp/A = Ratio between Heat perimeter and cross sectional Area of the section, [m^{-1}].

Appendix to certificate TAF00001V9

Table 8: Prediction table for thickness of “Jotachar JF750 XT” system for fire protection of I sections for a critical temperature of 500 °C.

Hp/A	Fire resistance time in minutes. Thickness in mm											
	15	30	45	60	75	90	105	120	150	180	210	240
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The thickness of material rounded up to the nearest Hp/A [m^{-1}] shall be used.
Hp/A = Ratio between Heat perimeter and cross sectional Area of the section, [m^{-1}].

Appendix to certificate TAF00001V9

Table 9: Prediction table for thickness of “Jotachar JF750 XT” system for fire protection of I sections for a critical temperature of 538 °C.

Hp/A	Fire resistance time in minutes. Thickness in mm											
	15	30	45	60	75	90	105	120	150	180	210	240
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The thickness of material rounded up to the nearest Hp/A [m^{-1}] shall be used.
Hp/A = Ratio between Heat perimeter and cross sectional Area of the section, [m^{-1}].

Appendix to certificate TAF00001V9

Table 10: Prediction table for thickness of “Jotachar JF750 XT” system for fire protection of I sections for a critical temperature of 550 °C.

Hp/A	Fire resistance time in minutes. Thickness in mm											
	15	30	45	60	75	90	105	120	150	180	210	240
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The thickness of material rounded up to the nearest Hp/A [m^{-1}] shall be used.
Hp/A = Ratio between Heat perimeter and cross sectional Area of the section, [m^{-1}].

Appendix to certificate TAF00001V9

Table 11: Prediction table for thickness of “Jotachar JF750 XT” system for fire protection of I sections for a critical temperature of 600 °C.

Hp/A	Fire resistance time in minutes. Thickness in mm											
	15	30	45	60	75	90	105	120	150	180	210	240
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The thickness of material rounded up to the nearest Hp/A [m^{-1}] shall be used.
Hp/A = Ratio between Heat perimeter and cross sectional Area of the section, [m^{-1}].

Appendix to certificate TAF00001V9

Table 12: Prediction table for thickness of “Jotachar JF750 XT” system for fire protection of I sections for a critical temperature of 620 °C.

Hp/A	Fire resistance time in minutes. Thickness in mm											
	15	30	45	60	75	90	105	120	150	180	210	240
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The thickness of material rounded up to the nearest Hp/A [m^{-1}] shall be used.
Hp/A = Ratio between Heat perimeter and cross sectional Area of the section, [m^{-1}].

Appendix to certificate TAF00001V9

Table 13: Prediction table for thickness of “Jotachar JF750 XT” system for fire protection of I sections for a critical temperature of 650 °C.

Hp/A	Fire resistance time in minutes. Thickness in mm											
	15	30	45	60	75	90	105	120	150	180	210	240
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The thickness of material rounded up to the nearest Hp/A [m^{-1}] shall be used.
Hp/A = Ratio between Heat perimeter and cross sectional Area of the section, [m^{-1}].

Appendix to certificate TAF00001V9

Table 14: Prediction table for thickness of “Jotachar JF750 XT” system for fire protection of I sections for a critical temperature of 700 °C.

Hp/A	Fire resistance time in minutes. Thickness in mm											
	15	30	45	60	75	90	105	120	150	180	210	240
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The thickness of material rounded up to the nearest Hp/A [m^{-1}] shall be used.
Hp/A = Ratio between Heat perimeter and cross sectional Area of the section, [m^{-1}].

Appendix to certificate TAF00001V9

Table 15: Prediction table for thickness of “Jotachar JF750 XT” system for fire protection of I sections for a critical temperature of 750 °C.

Hp/A	Fire resistance time in minutes. Thickness in mm											
	15	30	45	60	75	90	105	120	150	180	210	240
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The thickness of material rounded up to the nearest Hp/A [m^{-1}] shall be used.
Hp/A = Ratio between Heat perimeter and cross sectional Area of the section, [m^{-1}].