

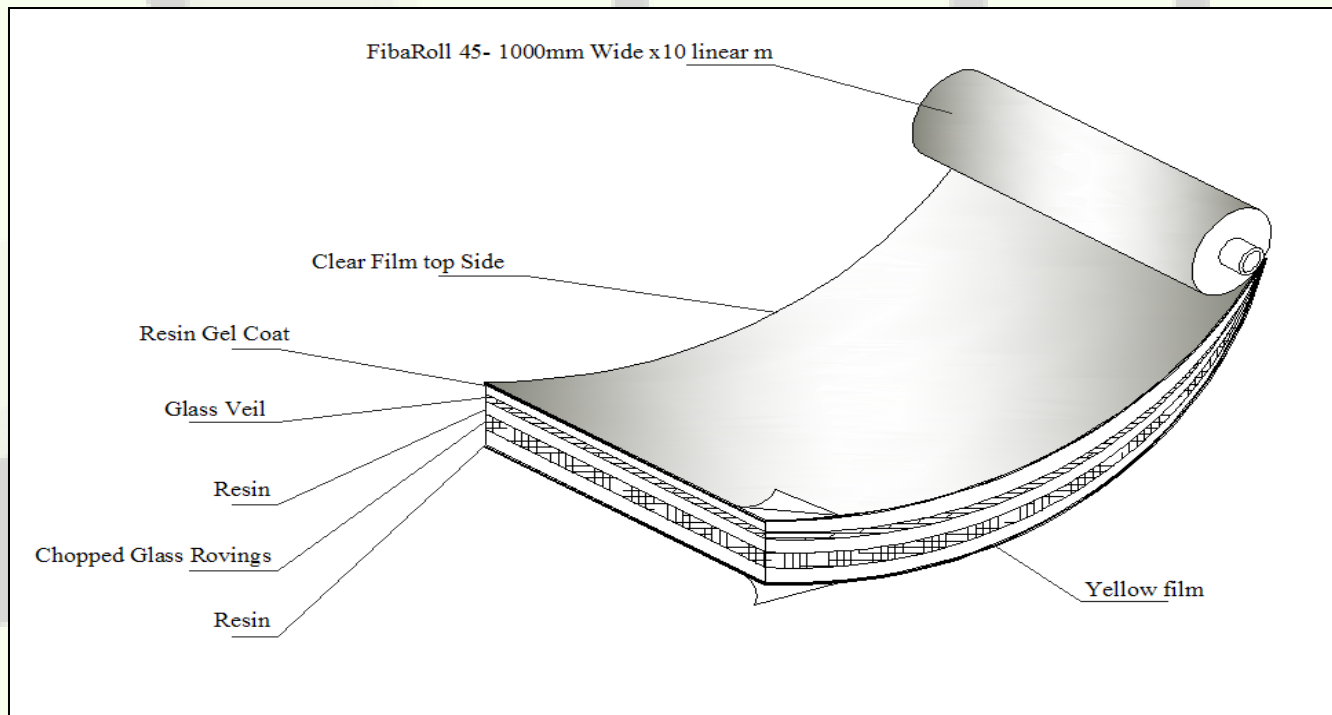


FibaRoll as the best
solution for corrosion
protection & prevention

FibaRoll

What is it?

- UV curing Glass Reinforced Polymer (GRP)
- Supplied in rolls 0.6m/1m x 10m



FibaRoll

- FibaRoll cures with sunlight or with using our F.A.S.T flood lights
- In good daylight a full cure is achieved in 1-3 hours
- When cured all grades of FibaRoll have excellent mechanical and chemical resistance

FibaRoll prevents corrosion

- corrosion under insulation (CUI) when used as a cladding material
- corrosion of steelwork when used as a coating

FibaRoll

...as cladding




...as a coating



Benefits...



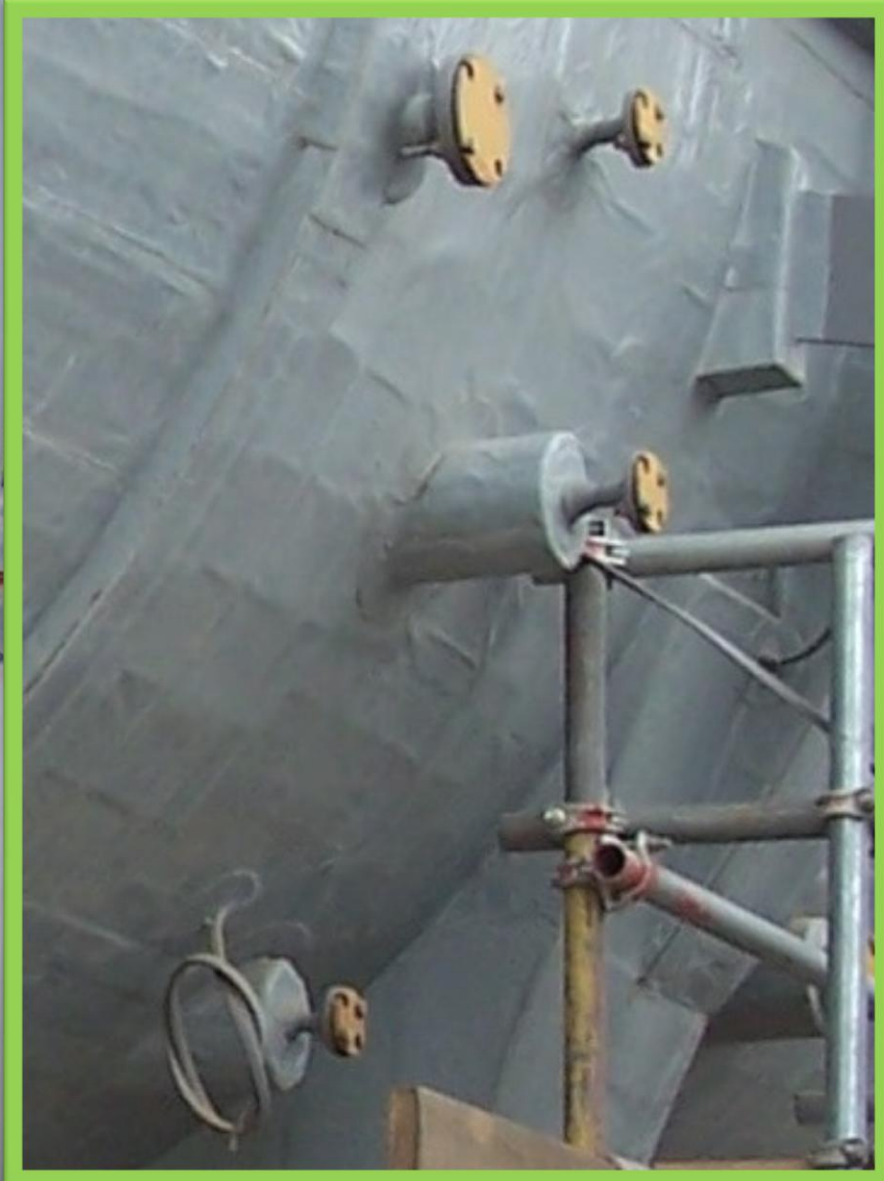
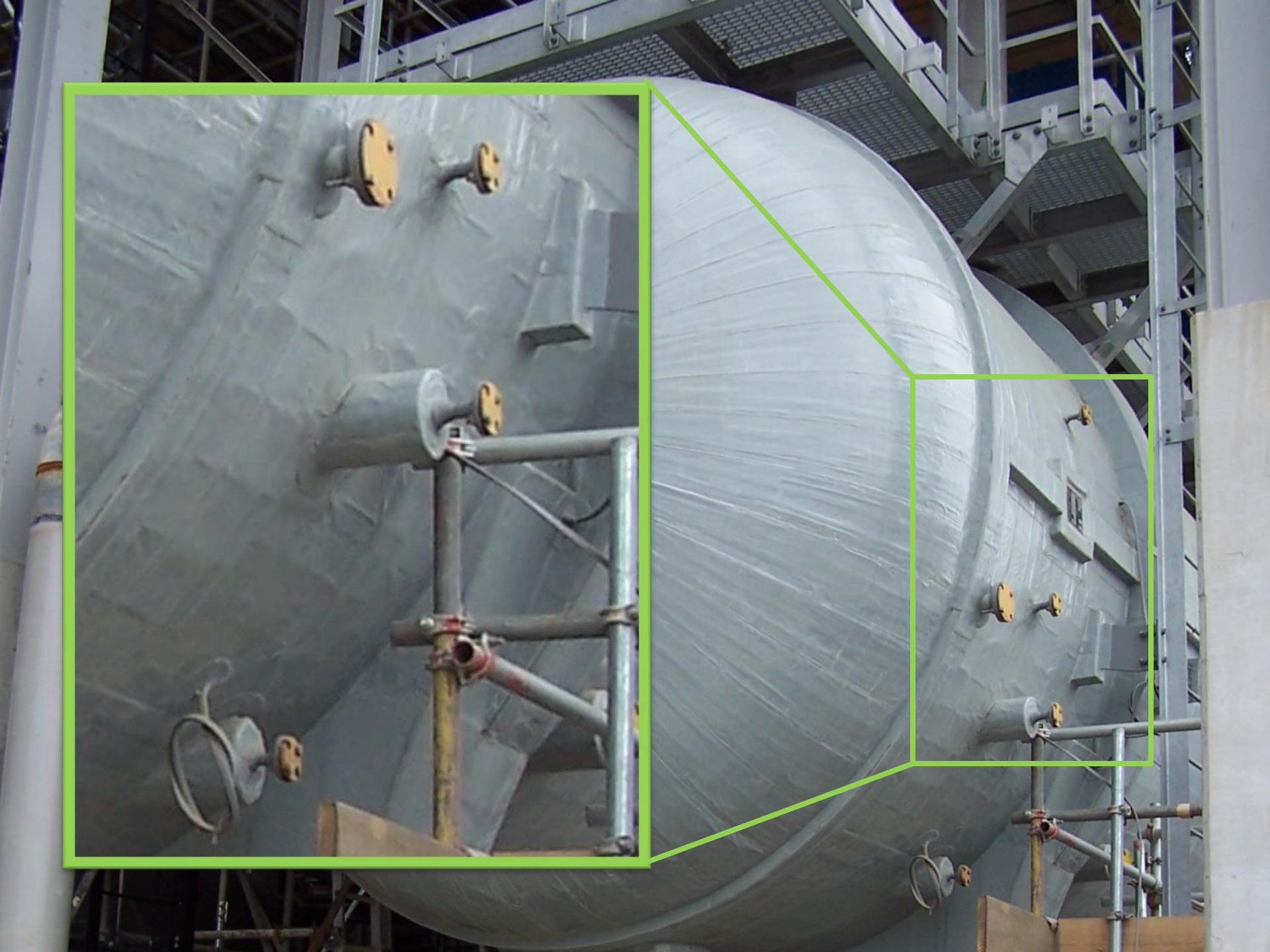
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- 
- Fully integrated, sealed system
 - Joints are the strongest points on system

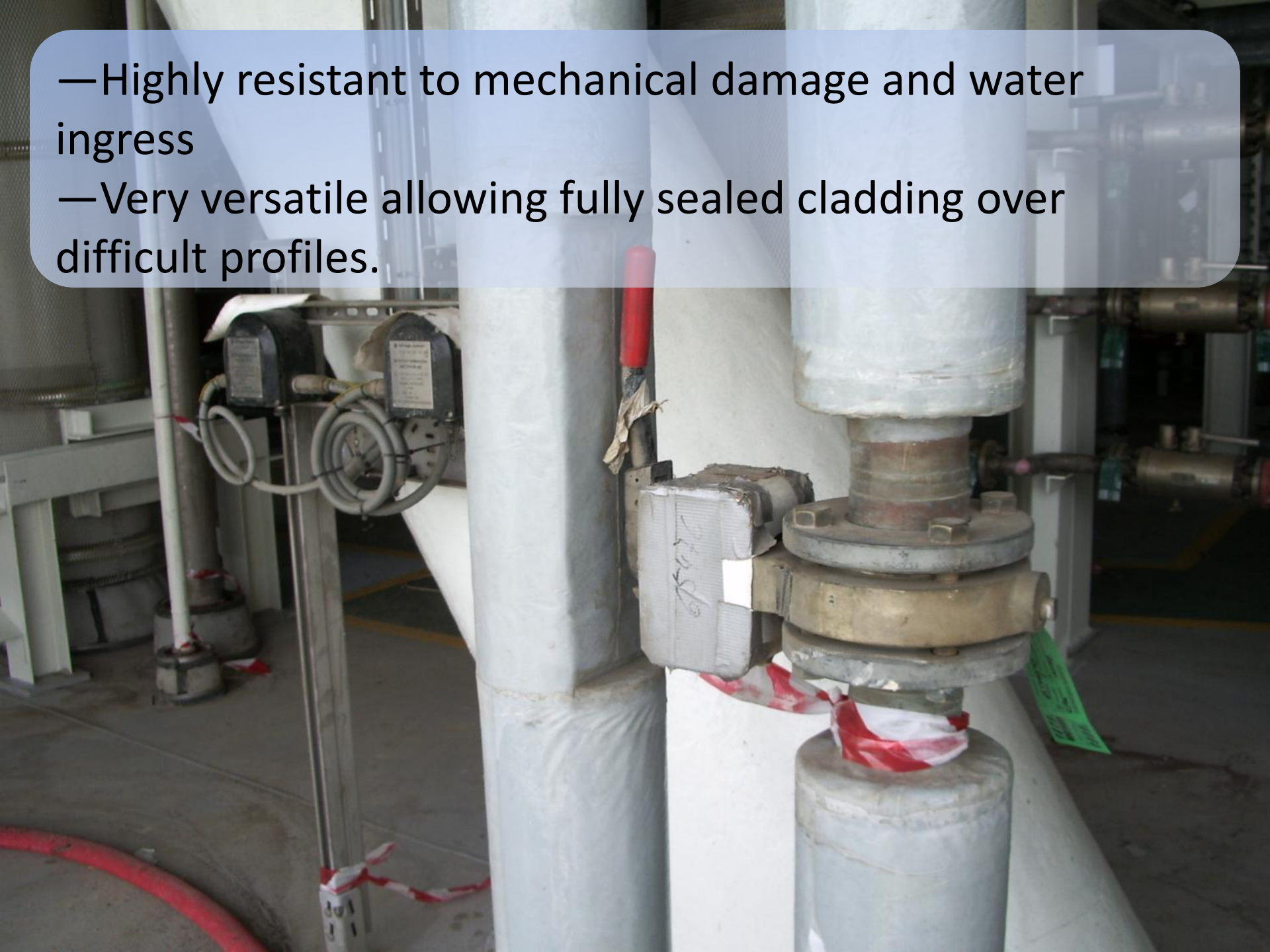
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- Easy to seal difficult profiles
- Very strong and watertight at penetrations and terminations





- Highly resistant to mechanical damage and water ingress
- Very versatile allowing fully sealed cladding over difficult profiles.



—and can easily withstand foot traffic







Grades of FibaRoll

FR M1 - Polyester resin, developed for fire performance

Maximum contact operating temperature of 100°C with peaks up to 160°C.

Meets:

- M1 NFP92-501 Epiradiateur Test
- BS476 Part 7 Class 1
- ASTM E84 class 1
- as low smoke evolution on burning with no harmful gas levels as defined by IMO MSC 61 (67) 1996.

Grades of F i b a R o l l

VECR – Vinyl ester resin, developed for high chemical resistance and high temperatures.

- Maximum contact operating temperature (above ground) of 150°C with peaks up to 220°C
- excellent chemical resistance and mechanical properties.
- This product has been used to protect underground pipelines, chemical tanks and vessel tops.

Major Projects (on-shore)

- 2003 BP Grangemouth, Scotland protection of LPG spheres in conjunction with fireproofing 40,000 sqm.
- 2004-2005 CNOOC/Shell Nanhai, China. Protection of insulated tanks, vessels and pipework on petrochemical plant 250,000 sqm.
- 2005-2008 Sakhalin Onshore Gas Processing (Shell JV) protection of insulated tanks and pipework 100,000 sqm.
- 2005-2008 Sakhalin LNG (Shell JV) protection of insulated tanks, vessels and pipework 300,000 sqm.
- 2007-2010 Brunei LNG 100,000 sqm insulation refurbishment project
- 2007-2010 Shell, Singapore Ethylene Plant 200,000sqm
- 2008-2010 Shell, Qatar GTL plant 200,000sqm

FibaClad

FibaClad is made from FibaRoll

- It is a pre-cured GRP cladding system
- Same high integrity system as FibaRoll only without the need for on-site curing.
- FibaClad applications are therefore **quicker** and **easier**.



FibaClad is fast and simple to apply



1



2



3



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- FibraClad is very strong and can easily handle foot traffic
- Joints are very strong



—FibraClad has high impact resistance ($70\text{KJ}/\text{m}^2$)

—Full range of fittings available for pipe sizes ½” to 16”






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—FibaClad is fully compatible with FibaRoll, offering **permanently sealed systems...**

A photograph of a complex industrial piping system. The image shows a dense network of blue pipes, some running vertically and others horizontally, connected by various fittings and valves. The pipes are supported by a yellow metal structure consisting of beams and ladders. The background is a clear blue sky, suggesting an outdoor or semi-outdoor industrial setting. The overall scene is one of a well-maintained and intricate engineering project.

—alternatively with the use of FibaBond adhesive sealant FibaClad can be removed and resealed, allowing **easy inspection without damage.**

Insulation Protection - Summary

FibaRoll and FibaClad

- offer mechanically robust and watertight cladding systems that can withstand foot traffic and other abuse
- This results in reduced maintenance

FibaRoll

- versatility to clad complex insulation profiles in a strong, watertight system

FibaClad

- fast and simple to apply whilst offering a superior barrier against moisture

FibaRoll and FibaClad are completely compatible

Steel and concrete protection

- FibaRoll is an excellent protective coating for steel work, pipe lines and concrete.
- VECR grade has excellent chemical resistance and can operate continuously at 150°C (above ground).

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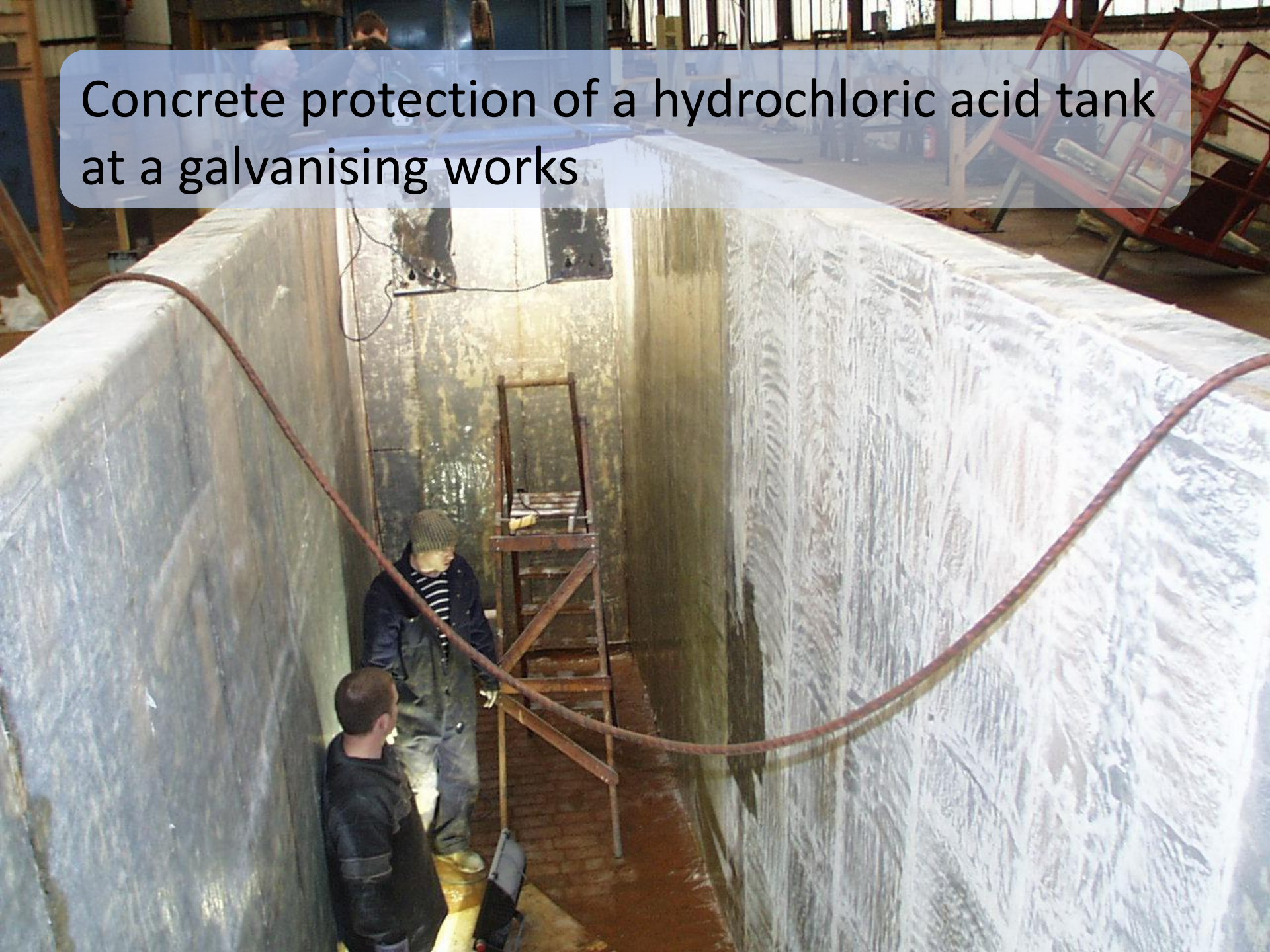


“Cigarette wrapped” Cold water lines at Shell Stanlow



Spiral wrapped FibaRoll for protection of underground pipe

Concrete protection of a hydrochloric acid tank at a galvanising works









Main points

- Excellent adhesion to steel and concrete, >10MPa (1450 psi)
- High tensile strength
- High flexural strength
- Excellent corrosion protection
- Simple application
- Cost effective
- Extend asset life

FTI

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Fiba Wearpads



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Prevents corrosion at pipe support areas









Fiba Wearpads

- Protects pipes at a key point of potential failure, thus significantly extending plant life
- Hard wearing and chemically resistant
- Fast and simple application
- No hot work permit required
- Adhered using FibaGel HB5 glass-filled two component adhesive, or flexible FibaBond adhesive
- Fully sealed to pipe – no water ingress beneath wearpad
- Fully compatible with FibaRoll applications, allowing 360° protection from coating damage.

FFTI

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Services of the producing company

- Training of contractors in the use of all products
- Quality Control and Inspection services to support contractors and client
- Design and drawings for clients
- Installation procedures and details
- Testing and design for piping systems using FibaShield pre-insulated pipe

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Application Training and Inspection

Sakhalin LNG - Russia

- FibaRoll Products: FibaRoll
- Client: Shell
- Date: 2006 - 2008
- Main Contractor: Chiyoda & Toyo
- Scope: 270,000 sqm full hot & cold insulation cladding specification
- Other Factors: For the harsh Russian climate FTI bespoke manufactured a 1.8mm grade of FibaRoll. A highly successful FibaRoll project achieved by working in close partnership with the insulation contractor Cape East.



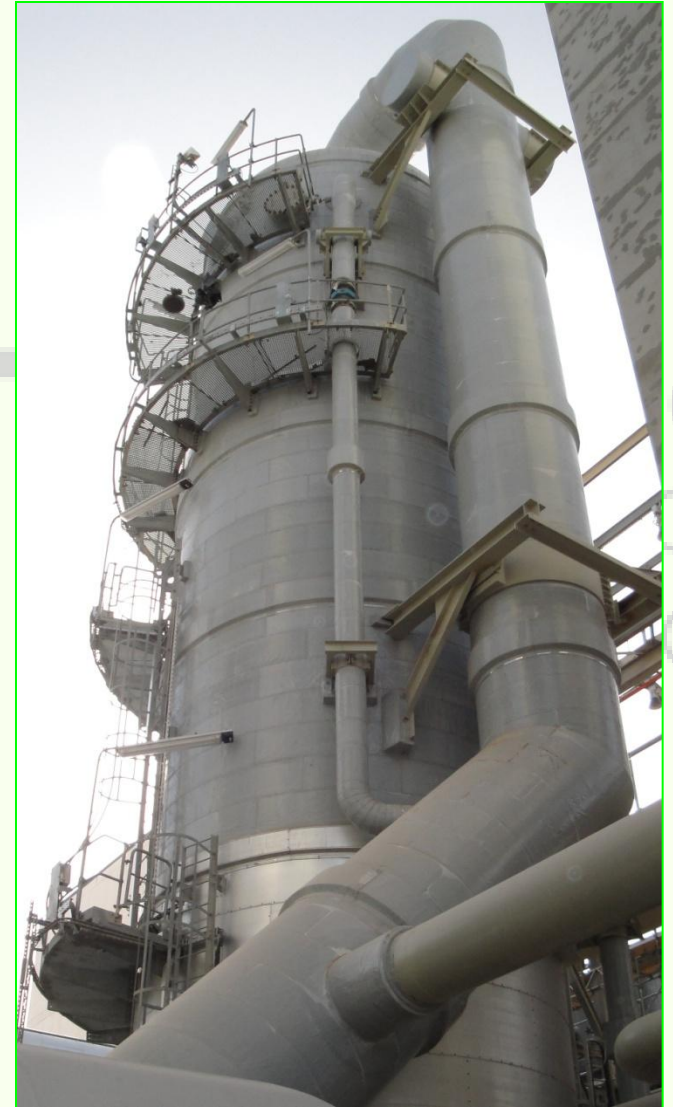
Pazflor FPSO – South Korea

- FTI Products: FibaRoll, FibaClad Straights & Fixtures
- Client: Total
- Date: 2010 – Present Day
- Main Contractor: Daewoo Shipping & Marine Engineering
- Scope: Largest FPSO new build worldwide. 16 process units > 25,000 sqm.
- Other Factors: Very tight access & low natural light was a major factor in specifying FibaClad straights & fixtures



Pearl GTL - Qatar

- FTI Product: FibaRoll & FibaClad
- Client: Shell
- Date: June 2009 – Present Day
- Main Contractor: Hyundai, Chiyoda, Linde, CCIC, Veolia, Toyo
- Scope: 150,000 sqm Cold Insulation Cladding



Thank you for your honourable attention!

Szabolcs Bátyi
general manager

Interflow Ltd., H-2459 Rácalmás Petőfi S.u.1309/1.
T.:00 36 30 575 2288; F.: 00 36 25 507 835
sz.baty@interflow.hu;