

A collage of six images showing various aspects of oil and gas pipeline maintenance: a pipeline with a yellow repair band, a pipeline being excavated, an offshore oil rig at sunset, a close-up of a pipeline joint, a diver working on a pipeline, and a close-up of a pipeline repair. The text 'INNOVATIVE REPAIR SOLUTIONS' is overlaid in large, white, outlined letters.

INNOVATIVE REPAIR SOLUTIONS

FOR YOUR INSTALLATIONS

www.3xeng.com



30 years of experience in Oil & Gas pipeline maintenance

INNOVATIVE REPAIR SOLUTIONS



FOR YOUR INSTALLATIONS

OUR RANGE OF PRODUCTS



Composite repair
for pipe reinforcement

REINFORCEKIT® 4D



Composite repair
for damaged tank

TANKIT® & REINFORCEKIT® PATCH



Prepreg for pipe
protection & reinforcement

REINFORCEKIT® 1D



Online
leak sealing

STOPKIT®



Pipe & support
protection

ROLLERKIT®



Online repair
for SF6 leaking flange

REFLANGEKIT®



Beam renovation &
corrosion protection

REINFORCEKIT® BEAM & DKIT®



ABOUT US

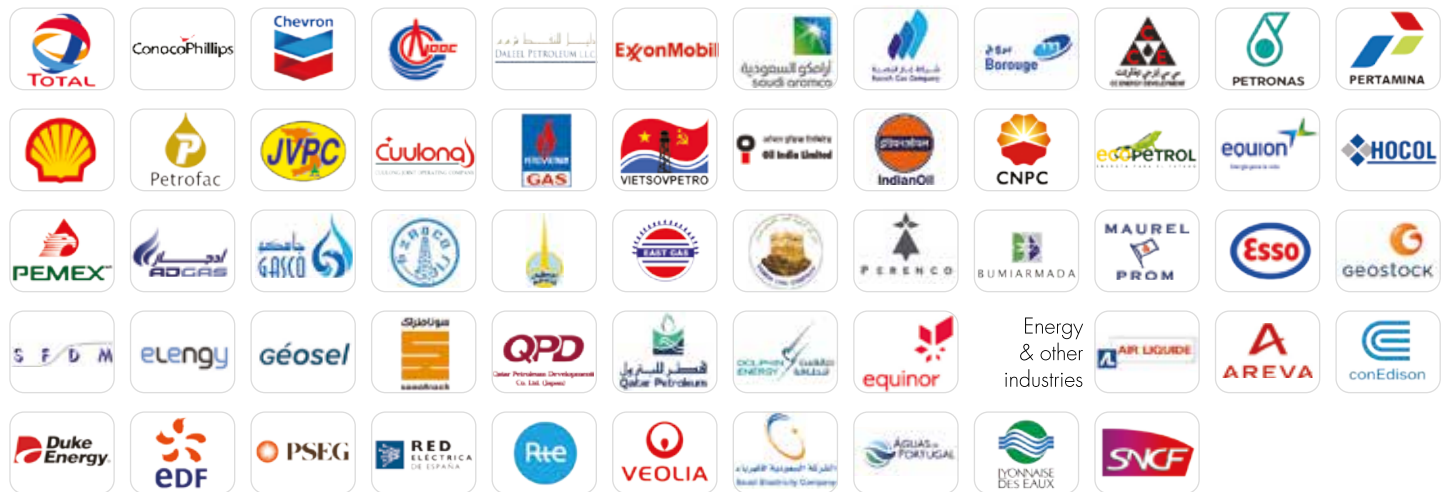


Founded in 1990, 3X ENGINEERING is one of the leading companies in pipeline repair using composite technology. Mainly operating in Oil & Gas industry, our expertise also includes Energy and Construction sector. We not only manufacture and commercialize our own products, but we also offer a complete integrated service, from the design of the repair to onsite installation. From our head offices in Monaco, we operate worldwide, Onshore and Offshore/Subsea, thanks to our large distribution network today made of over 50 partners.

OUR SERVICES



OUR CLIENTS Oil & Gas



Energy
& other
industries

This list is non-exhaustive

OUR DISTRIBUTION NETWORK



Accurate information at time of printing. For latest update, please have a look to our website www.3xeng.com



3X ENGINEERING : 9, avenue Albert 2 - 98 000 MONACO
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REINFORCEKIT® 4D

COMPOSITE REPAIR FOR PIPE REINFORCEMENT

According to ISO 24.817 & ASME PCC-2



All
diameters



-50°C to
+150°C



Oil



Gas



Water



Onshore/Offshore/
Subsea



Elbow
repair

**EXTERNAL
DAMAGE**

Sabotage
repair

Leak
repair

**INTERNAL
DAMAGE**

Dent
repair

Pinhole
repair

Weld
repair

Tee
repair



PIPE REPAIR & REINFORCEMENT



COMPOSITE WRAPPING



ONSHORE-OFFSHORE-SUBSEA



INNOVATIVE REPAIR SOLUTIONS
FOR YOUR INSTALLATIONS



REINFORCEKIT® 4D (R4D) is a wet lay-up system, wrapped helicoidally around the pipe in order to bring the mechanical resistance to the damaged pipe section. This composite technology, made of Kevlar® tape and specific bi-component epoxy resin, is the solution for a long-term pipe reinforcement.

3X ENGINEERING has developed its own software called R.E.A to design the composite repair and define the material requirements in accordance with ISO 24.817 & ASME PCC-2.

REINFORCEKIT® 4D RANGE



ONSHORE / OFFSHORE ON AIR



Range of 6 epoxy resins

according to the characteristics of the defect

OFFSHORE SUBSEA



Specific resin for subsea application

that polymerizes underwater



USES

- Reinforce pipe suffering from:
 - internal and external corrosion
 - pinhole, leakage, crack
 - mechanical damage, dent
 - severe abrasion, erosion
 - sabotage ...
- Restore pipe integrity



APPLICATIONS

- Onshore, Offshore and Subsea
- All pipe geometries including welds, elbows and tees
- All pipe sizes (no limitation)
- High pressure pipeline
- Pipe operating from negative up to high temperature
- Pipe transporting most common fluid and gas



BENEFITS

- Online repair (no shutdown required except in case of leakage)
- No loss of production
- Non-conductive repair
- No hot work
- Long-term performance

REINFORCEKIT® 4D IMPLEMENTATION STEPS



IMPLEMENTATION BY TRAINED AND CERTIFIED APPLICATORS ONLY

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TANKiT® & REINFORCEKiT® PATCH



COMPOSITE REPAIR SYSTEMS FOR DAMAGED TANKS



Oil



Water



Gas



Onshore & Offshore



TANKiT®



BEFORE

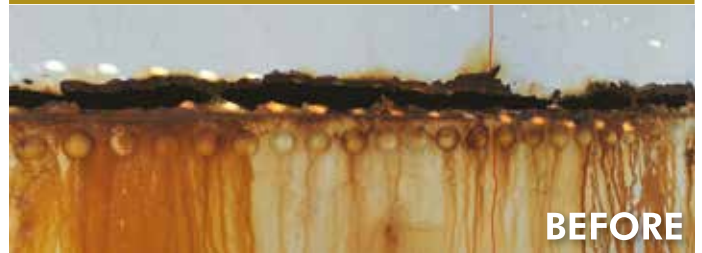


AFTER

EMERGENCY REPAIR

Ready-to-use kit

REINFORCEKiT® PATCH



BEFORE



AFTER

LONG-TERM REPAIR

Compliant with ISO 24.817
& ASME PCC-2/API 653

SUITABLE FOR VARIOUS TANK DESIGNS AND SIZES



INNOVATIVE REPAIR SOLUTIONS
FOR YOUR INSTALLATIONS



TANKiT® and **REINFORCEKiT® PATCH** are two composite patch repair systems designed to reinforce tanks, terminals and pressure vessel suffering from corrosion defects, mechanical damages and leaks.

TANKiT® is an emergency and temporary reinforcement solution ready to be used in specific cases.

REINFORCEKiT® PATCH is the solution for a lasting tank reinforcement (up to 20 years for external corrosion) and can be applied whatever the conditions, after engineering and calculations (compliant with international standards).

Both of them can be applied without shutdown, unless active leakage.

TANKiT® & REINFORCEKiT® PATCH MAIN TECHNICAL DATA

TANKiT®		REINFORCEKiT® PATCH	
ONSHORE/OFFSHORE	◀ Application ▶	ONSHORE/OFFSHORE	
-50°C / +60°C (-58°F / +140°F)	◀ Service temperature ▶	-50°C / +150°C (-58°F / +302°F)	
+10°C / +60°C (+50°F / +140°F)	◀ Application temperature ▶	+10°C / +130°C (+50°F / +266°F)	
Up to 20m	◀ Max. tank Ø ▶	No limitation	
Up to 100mm	◀ Max. defect size ▶	No limitation	
Depends on tank & defect diameter (ex. : up to 2.2 bars for 100 mm hole and 10m diameter tank)	◀ Max. pressure ▶	No limitation	

TANKiT® & REINFORCEKiT® PATCH COMPONENTS




TANKiT®
is a pre-engineered product
sold in ready-to-use kit.

1 TANKiT® = 1 repair



Steel plate & F3X8 filler + 5 Kevlar® patches (300x300mm) & R3X70+ bi-component resin + Accessories




REINFORCEKiT® PATCH
is tailor made for each repair.

This product requires engineering and calculations according to ISO 24.817 & ASME PCC-2/API 653.

It is made of Kevlar® patches and 3X bi-component epoxy resin.

The dimensions and number of patches, the type and quantity of resin will depend on the defect and will be defined using 3X software.





TANKiT® BENEFITS

- No engineering, no calculations (ready-to-use)
- Online repair (except for hole)
- No heating or post-curing required
- Cold welding system
- Cost effective solution



REINFORCEKiT® PATCH BENEFITS

- In accordance with standards (ISO 24.817 & ASME PCC-2/API 653)
- Online repair (except for hole)
- Long-term repair for external defect (up to 20 years)
- No limitation in pressure and defect size
- Conform to all tank designs and sizes

 **IMPLEMENTATION BY TRAINED AND CERTIFIED APPLICATORS ONLY**





REINFORCEKIT® 1D

COMPOSITE REPAIR FOR PIPE PROTECTION AND REINFORCEMENT

Water activated polyurethane prepreg system



All
diameters



up to +68°C
(for reinforcement)



Oil



Gas



Water



Onshore / Offshore



PIPE REPAIR AND REINFORCEMENT
According to ISO 24.817 & ASME PCC-2



PREPREG WRAPPING



**INNOVATIVE REPAIR SOLUTIONS
FOR YOUR INSTALLATIONS**



REINFORCEKit® 1D (R1D) is a water activated prepreg system, wrapped helicoidally around the pipe to restore its original integrity without shutdown.

This composite product made of fiber glass and polyurethane resin is a long-term solution designed to repair pipes suffering from corrosion defects and mechanical damages.

The repair design is provided by 3X software R.E.A in accordance with ISO 24.817 & ASME PCC-2 standards.

REINFORCEKit® 1D can also be used as protection for coatings. In this case, no calculations, no filler and primer are needed and the installation process is reduced.

REINFORCEKit® 1D RANGE AND COMPONENTS

2 tape sizes



R1D-150
(150mm x 15m)

R1D-285
(285mm x 15m)

Needed fillers for reinforcement application ONLY



Filler

Primer

Needed accessories for application



Water
spray

Plastic
wrap

Spiked
roller

The roll of prepreg tape is sold without fillers and accessories for application



USES

- Reinforce pipe suffering from:
 - external and internal corrosion
 - mechanical damage
- Restore pipe original integrity
- Impact protection
- Coating protection



APPLICATIONS

- Onshore and Offshore
- All pipe geometries including welds, elbows and tees
- All pipe sizes (no limitation)
- Pipe operating from -50°C to +68°C (for reinforcement application) and up to +88°C (for protection application)
- Pipe transporting most common fluid and gas



BENEFITS

- Online repair (no shutdown required)
- Fast and easy implementation
- Long-term performance
- No heating or post-curing required

REINFORCEKit® 1D IMPLEMENTATION STEPS



Designed as per
ISO 24.817
& ASME PCC-2



Surface preparation
Sa2½ / St3 and
roughness Rz > 60 µm



Filler and primer
applications



R1D wrapping (spray
water continuously)



Identification plate
positioning



Compression film
application and
perforation

For reinforcement application, steps 1 to 6

For protection application, only steps 4-5-6

3X recommends to apply an anti-UV coating after R1D installation

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STOPKIT®



ONLINE LEAK SEALING

Emergency Pipeline Repair System (EPRS)



Up to
80 bars



2" to 56"



-20°C
to +80°C



Oil



Gas



Water



Onshore/Offshore/Subsea



Online
hole sealing

Online leaking
weld sealing

Online
pinhole
sealing



EMERGENCY REPAIR



ONSHORE



OFFSHORE / SUBSEA



INNOVATIVE REPAIR SOLUTIONS
FOR YOUR INSTALLATIONS

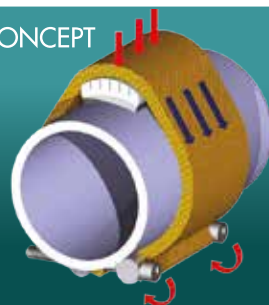


STOPKiT® is the only efficient repair in the world able to seal a leak online in few minutes.

The system is designed to make a compression point on the leak by concentrating the tightening effort on the rubber patch.

This patented product is an emergency and temporary system and is available under several models (depending on pipe and hole diameter) and for various environments (onshore, offshore and subsea).

CONCEPT



STOPKiT® RANGE FROM 2" TO 56" (*)

ONSHORE



STOPKiT® 50

Max. hole Ø 10mm
Max. pressure 80 bars (1160 psi)

Pipe temperature
-20°C / +80°C
(-4°F / +176°F)

STOPKiT® 100

Max. hole Ø 50mm
Max. pressure 30 bars (435 psi)

Pipe temperature
-20°C / +80°C
(-4°F / +176°F)

OFFSHORE / SUBSEA



STOPKiT® 50

Max. hole Ø 10mm
Max. pressure 80 bars (1160 psi)

Pipe temperature
+5°C / +80°C
(+41°F / +176°F)

STOPKiT® 100

Max. hole Ø 50mm
Max. pressure 30 bars (435 psi)

Pipe temperature
+5°C / +80°C
(+41°F / +176°F)

(*) specific data for 2" and 3" models



USES

- Emergency and temporary repair for leaking pipe



APPLICATIONS

- Onshore, Offshore and Subsea
- Suitable for weld, elbow, oval pipe ...
- Pipe diameters from 2" to 56"
- Pipe temperatures from -20°C to +80°C (-4°F to +176°F)
- Pipe transporting most common fluid and gas



BENEFITS

- No shutdown required
- No additional load on pipe (light product)
- Quick installation
- Easy to store
- Shelf life: 5 years

STOPKiT® IMPLEMENTATION STEPS (using STOPKiT® Positioner device)



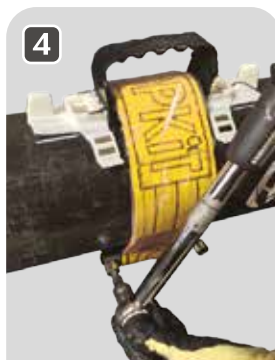
Set-up the 1st part of the positioner



Install the STOPKiT® and slide it over the leak



Set-up the 2nd part of the positioner



Tighten up to 40 Nm (<40°C)
Tighten up to 30 Nm (>40°C)



Remove the positioner



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COMPOSITE REPAIR



DKIT
BEAM PROTECTION



REINFORCEKIT BEAM
BEAM REINFORCEMENT



REINFORCEKIT
PIPE REINFORCEMENT



ROLLERKIT
SUPPORT PROTECTION



STOPKIT
STOP LEAK ONLINE



REINFORCEKIT
PIPE REPAIR



www.3x.com



ONLINE LEAK SEALING



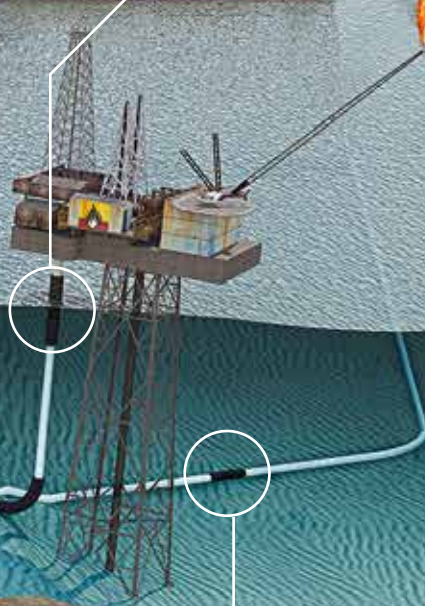
REINFORCEKIT 4D
RISER REINFORCEMENT



TANKIT
TANK REPAIR



REINFORCEKIT 4D
RISER REINFORCEMENT



REINFORCEKIT 4D



STOPKIT SUBSEA
SUBSEA LEAK SEALING



REINFORCEKIT 4D SUBSEA
SUBSEA PIPE REPAIR



eng.com



Lloyd's Register





ROLLERKIT®

PIPE & SUPPORT PROTECTION

Against Corrosion Under Support (CUS)
According to ASME B31.1



Old & new
installations



4" to
56"



-30°C to
+150°C



Oil



Gas



Water



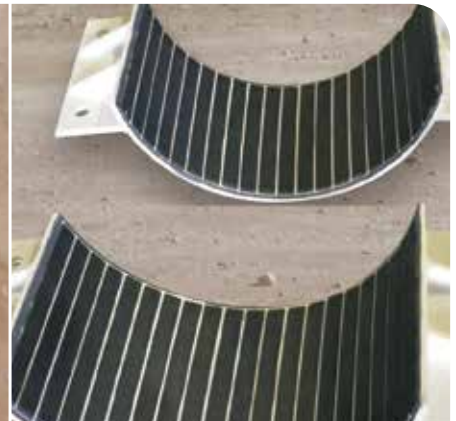
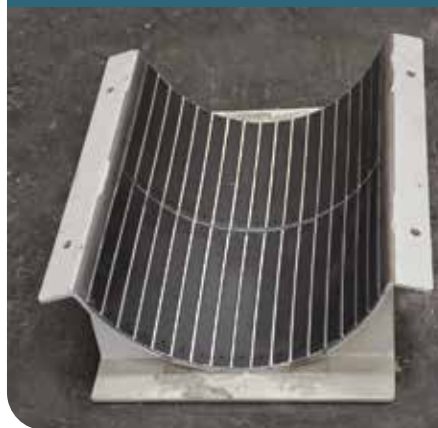
Onshore/Offshore/Subsea



ROLLERKIT® ON PIPE



ROLLERKIT® ON SUPPORT



INNOVATIVE REPAIR SOLUTIONS
FOR YOUR INSTALLATIONS



ROLLERKIT® is a preventive and curative repair system for corrosion under support, to be installed both on support or on pipe. Depending on the level of corrosion, **ROLLERKIT®** can be applied directly on pipe for superficial corrosion.

ROLLERKIT® is made of high performance polymer pads thermo-welded on glass fiber fabric and specific epoxy resin. Pads are designed to support the weight of the pipe (according to ASME B31.1).

ROLLERKIT® RANGE

Model	Pipe O.D. (inch)	Application	Temperature	Resin	Length / Width / Thickness (mm)
ROL-28	4" to 28"	Onshore & Offshore topside	-30°C / +150°C (-22°F / +302°F)	F3X8	3000 x 160 x 8
ROL-56	30" to 56"		-30°C / +150°C (-22°F / +302°F)	F3X8	3000 x 300 x 12

For SPLASH ZONE & SUBSEA applications, contact us

ROLLERKIT® COMPONENTS

A single kit allows up to 28 repairs according to pipe diameter

Roll of 86 pads

Resin cartridges

Kit of accessories including: spatula, squeegee, mixing plate, bubble level systems and belts



USES

- Protect the pipe at support area
- Prevent:
 - corrosion
 - abrasion
 - humidity
 - galvanic effects
 - friction



APPLICATIONS

- Onshore, Offshore and Subsea
- Old and new installations
- All pipe supports (steel, concrete ...)
- All design supports
- Pipe diameters from 4" to 56"
- Pipe temperatures from -30°C to +150°C (-22°F to +302°F)



BENEFITS

- Long-term service lifetime
- Non-metallic solution
- Pipe integrity preserved
- Fast and easy installation
- Dual use: preventive & curative system

ROLLERKIT® IMPLEMENTATION STEPS (installation on pipe)

1

Surface preparation
Sa2½ / St3 and
roughness Rz > 60 µm

2

ROLLERKIT® preparation

3

3X epoxy resin
application on
ROLLERKIT®

4

ROLLERKIT® cold welded
on the pipe

5

ROLLERKIT® installed



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REFLANGEKIT®



ONLINE REPAIR FOR SF6 LEAKING FLANGE



-20°C to
+65°C



SF6



Various
flange models



Power plant
installations



Nuclear power
stations



BEFORE



AFTER

INNOVATIVE REPAIR SOLUTIONS
FOR YOUR INSTALLATIONS

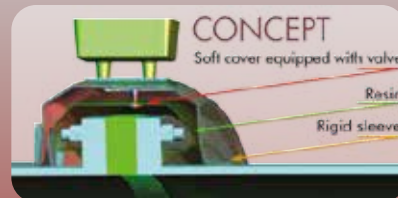


REFLANGEKit® is a SF6 leak sealing technique for flanges applicable online and under pressure.

REFLANGEKit® concept is based on a double shell system that encapsulates the leaking flange. The first soft shell made in PVC will cover and protect the flange and collect SF6 leaks. The second shell made in PET will contain 3X specific resin. An exhaust valve allows the gas getting out during resin injection. After overnight curing of resin, the valve is closed and sealed.

Thanks to this original system, flange and bolts are protected during resin injection and disassembly.

The product can be easily removed without damage.



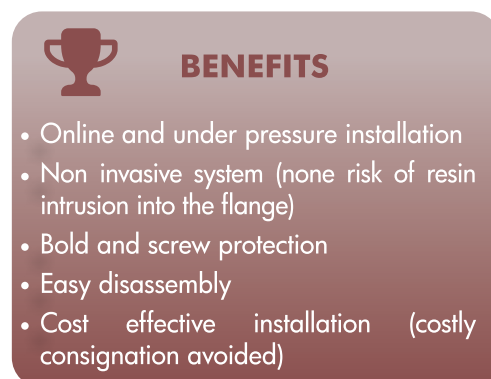
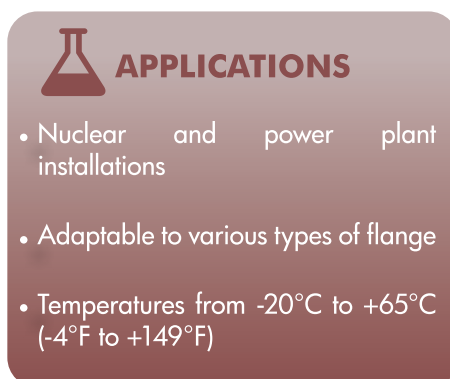
REFLANGEKit® HISTORY

REFLANGEKit® has been designed, developed and tested in partnership with EDF R&D (French Electricity Supplier). Various pressure tests and aging tests have been performed internally and in EDF laboratories in order to propose high quality product.

Used by:



Type of flange:



REFLANGEKit® IMPLEMENTATION STEPS



TO GUARANTEE THE EFFECTIVENESS AND SUSTAINABILITY OF THE PRODUCT, THE INSTALLATION MUST BE PERFORMED BY 3X SPECIALISTS

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REINFORCEKIT® BEAM



COMPOSITE REPAIR FOR DAMAGED BEAM



No size
limitation



All structure designs

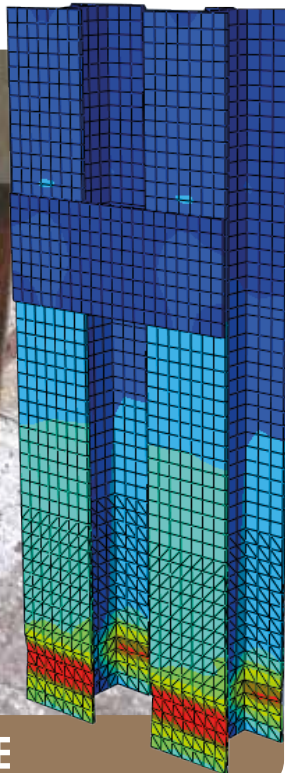


Onshore

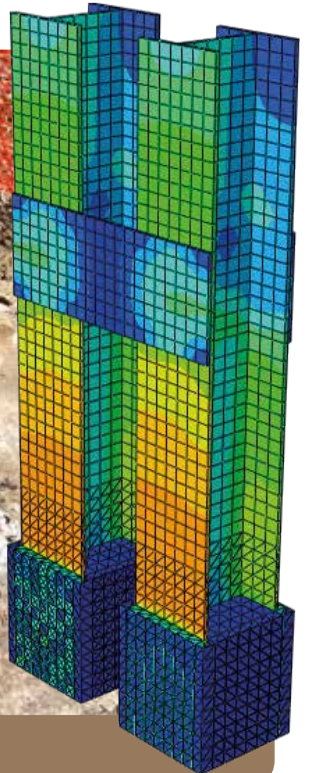
REINFORCEKIT® BEAM design is performed using Finite Element Simulation



BEFORE



AFTER



INNOVATIVE REPAIR SOLUTIONS
FOR YOUR INSTALLATIONS



REINFORCEKit® BEAM is a product recommended to reinforce corroded structures. Designed for lasting 20 years minimum, this product can renovate a structure suffering from severe corrosion (up to 80% of corrosion).

REINFORCEKit® BEAM is made of very high performance materials. Metal inserts are integrated on the defected structure by cold welding to give back the original mechanical resistance. Then the structure is wrapped with Kevlar® tape and 3X epoxy resin and recovered with specific anti-UV & impact protective coating.

REINFORCEKit® BEAM HISTORY

Initially co-developed in partnership with SNCF (French National Railway Company) for Railway Industry to reinforce catenary supports, **REINFORCEKit® BEAM** is suitable for all structure designs.

Since 2011 and after 2 years of testing (decohesion and mechanical tests ...), over a thousand of supports have been renovated successfully thanks to this original product.



USES

- Repair and reinforce structures
- Stop and renovate up to 80% of corrosion
- Restore structures integrity



APPLICATIONS

- Structures highly corroded
- All structure designs (beam, pole ...)
- All structure sizes



BENEFITS

- Installation without stopping traffic or production
- Long-term repair (20 years minimum)
- Cost-effective installation

REINFORCEKit® BEAM IMPLEMENTATION STEPS



**TO GUARANTEE THE EFFECTIVENESS AND SUSTAINABILITY OF THE PRODUCT,
THE INSTALLATION MUST BE PERFORMED BY 3X SPECIALISTS**

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DKiT®



CORROSION PROTECTION FOR BEAM

For new and old damaged beam



Old & new installations



No size limitation



H

L



All structure designs



Onshore



BEFORE



AFTER



INNOVATIVE REPAIR SOLUTIONS
FOR YOUR INSTALLATIONS



DKiT® is recommended to protect all kind of structures from corrosion. It is applied on the structure base, on the junction area with concrete basement. **DKiT®** is a multi-layers product made of 3 specific coatings:

- Anti-corrosion epoxy resin
- Waterproofing epoxy resin
- Anti-UV & impact protective coating (elastomeric material)

DKiT® HISTORY



Initially co-developped, tested and approved in partnership with SNCF (French National Railway Company), for Railway Industry to reinforce catenary supports, **DKiT®** is suitable for all structure designs.

After 3 years of testing (decohesion and mechanical tests), over a thousand of beams have been protected thanks to this original product.



USES

- Avoid corrosion and water infiltration in the concrete basement
- Ensure structures integrity and sustainability
- Protect from climatic aggressions, UV and impacts



APPLICATIONS

- All beam designs
- All structure designs built in concrete
- Old and new installations



BENEFITS

- Installation without stopping traffic or production
- Complex maintenance avoided
- Cost-effective installation
- Fast and easy application

DKiT® IMPLEMENTATION STEPS



Surface preparation Sa2½ / St3 and roughness Rz > 60 µm



Epoxy resin application for beam/concrete protection



Waterproofing by elastomeric resin application



Protective coating application





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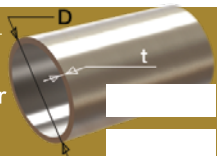
Pipe Defect Register P.D.R.

Client
Project
Defect ref.

3X distributor
Contact details

PIPE DIMENSION ☐ mm ☐ inch

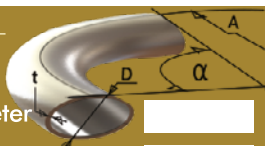
STRAIGHT



D: Original diameter

t: Wall thickness

BEND



D: Original diameter

t: Wall thickness

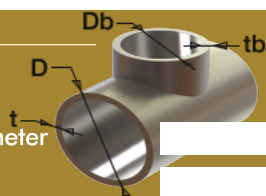
A: Medium radius of the bend

α : Opening angle bend

Bend defect location

Axial ☐ External ☐ Internal ☐

TEE



Main branch

D: Original diameter

t: Wall thickness

Secondary branch

Db: Original diameter

tb: Wall thickness

PIPE INFORMATION

Grade:

Other:

CONNECTION

Seamless (1.0)..... ☐
Electric Resistance Weld (1.0)... ☐
Electric Flash Weld (1.0)..... ☐
Electric Fusion (Arc) Weld / Spiral Weld (0.8)..... ☐
Furnace Butt Weld / Continuous Weld (0.6)..... ☐
(Double) Submerged Arc Weld (1.0).. ☐
Laser Beam Weld (1.0)..... ☐

FLUID

Oil..... ☐
Gas..... ☐
Water..... ☐
Chemical product..... ☐

If the fluid is chemical, specify its nature

FLUID SYSTEM COMPONENT

Pipeline..... ☐
Piping..... ☐
Riser..... ☐

ENVIRONMENT

Onshore..... ☐
Buried..... ☐
Offshore Subsea..... ☐
Offshore top side..... ☐

DESIGN FACTOR

According to the ASME B31.4 & ASME B31.8

Class 1	Class 2	Class 3	Class 4
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0,72	0,6	0,5	0,4
Other	<input type="text"/>		

PRESSURE

Psi ☐ Bar ☐ MPa ☐

Pipe design pressure
(only for information)

Pipe operating pressure
(only for information)

Repair design pressure

Repair Installation
pressure (plive)

Plive: pressure during application of the repair

TEMPERATURE

°C ☐ °F ☐

Pipe design temp.
(only for information)

Pipe operating temp. (only for information)

Min. Max.

Repair design temp.

Repair installation temp.

Min. Max.

PIPE DEFECT

DEFECT TYPE ☐ External ☐ Internal ☐

Metal loss..... ☐

Through-wall..... ☐

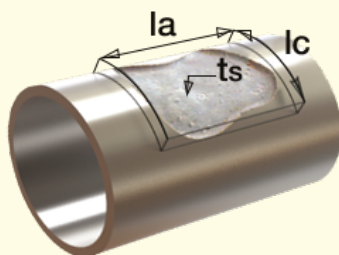
Crack..... ☐

Dent..... ☐

CALCULATION CHOICE

ISO 24.817..... ☐

ASME PCC-2..... ☐



REPAIR DESIGN LIFETIME Years

DEFECT DIMENSIONS

mm ☐ inch ☐

la: Defect axial length.....

Lc: Defect circumferential length...

ts: Minimum residual wall thickness.

DEFECT ORIGIN

Corrosion..... ☐

Abrasion / Erosion..... ☐

Impact..... ☐

PIPE ENVIRONMENT AND REPORTS

Yes No

Do you have an inspection report of the defect?..... ☐ ☐

Do you have pictures of the affected zone?..... ☐ ☐

Do you have clearance 40cm all around the pipe for working?.. ☐ ☐

Is the defect situated close to weld, nozzle, tee, bend, support?.... ☐ ☐

Is the defect close to habitations, machines, industries?..... ☐ ☐

Is there a sand blasting possibility (Sa $\frac{1}{2}$ & 60 μ m (Rz))?..... ☐ ☐

COMMENTS

Full name:

Signature & company stamp

Date : / /



In order to determine the repair technology, this document has to be fulfilled accurately. All missing information will affect the design, quality and standard acceptance and will be treated making assumptions. We will not be responsible for data input. We will only accept signed forms. The person fulfilling this form assumes full responsibility



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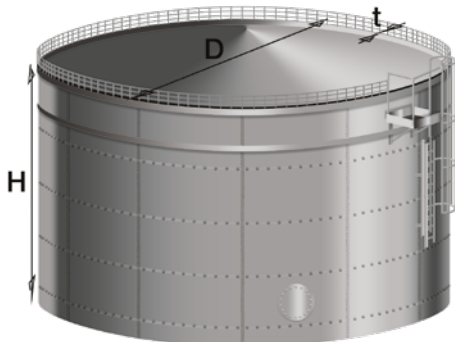
Tank Defect Register T.D.R.

Client
Project
Defect ref.

3X distributor
Contact details

TANK DIMENSION ☐ mm ☐ inch

D: Tank diameter
t: Wall thickness
H: Wall height



ROOF INFORMATION

What kind of tank roof do you have ?

Floating roof..... ☐
Immobile roof..... ☐

ACCESSIBILITY

If an internal tank repair is required, is it possible to access inside ?
Yes ☐ No ☐

TANK INFORMATION

Grade:
Other:

CONNECTION

Bolted..... ☐
Riveted ☐
Seamless..... ☐
Electric Resistance Weld..... ☐
Electric Flash Weld..... ☐
Electric Fusion (Arc) Weld / Spiral Weld ☐
Furnace Butt Weld / Continuous Weld ☐
(Double) Submerged Arc Weld..... ☐
Laser Beam Weld..... ☐

If you have a required Joint Efficiency factor:

FLUID

Oil..... ☐
Gas..... ☐
Water..... ☐
Chemical product..... ☐

If the fluid is chemical, specify its nature:

FLUID SYSTEM COMPONENT

Storage..... ☐
Pressurized Vessel..... ☐

ENVIRONMENT

Onshore..... ☐
Offshore top side..... ☐

If you have a design factor required :

PRESSURE

☐ Psi ☐ Bar ☐ MPa

Tank design pressure (only for information)

Tank operating pressure (only for information)

Repair design pressure

Repair Installation pressure (plive)
Plive: pressure during application of the repair

TEMPERATURE

☐ °C ☐ °F

Tank design temp. (only for information)

Tank operating temp. (only for information)

Min. Max.

Repair design temp.

Repair installation temp.

Min. Max.

TANK DEFECT

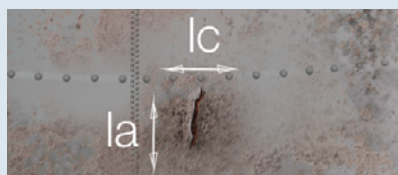
DEFECT TYPE ☐ Internal ☐ External

Metal loss..... ☐
Through-wall..... ☐
Crack..... ☐
Dent..... ☐

DEFECT ORIGIN

Corrosion..... ☐
Abrasion / Erosion..... ☐
Impact..... ☐

REPAIR DESIGN LIFETIME Years



CALCULATION CHOICE

ISO 24.817..... ☐
ASME PCC-2..... ☐

DEFECT DIMENSIONS ☐ mm ☐ inch

la: Defect axial length.....
lc: Defect circumferential length...
ts: Minimum residual wall thickness

DEFECT LOCATION

Roof..... ☐
Wall..... ☐
Between 2 welded sheets..... ☐
Near a screw..... ☐

PIPE ENVIRONMENT AND REPORTS

	Yes	No
Do you have an inspection report of the defect?.....	<input type="radio"/>	<input type="radio"/>
Do you have pictures of the affected zone?.....	<input type="radio"/>	<input type="radio"/>
Do you have clearance all around the defect?.....	<input type="radio"/>	<input type="radio"/>
Is the defect situated close to weld, to a rivet?.....	<input type="radio"/>	<input type="radio"/>
Is the tank close to habitations, machines, industries?.....	<input type="radio"/>	<input type="radio"/>
Is there a sand blasting possibility (Sa _{1/2} & 60µm (Rz))?... <input type="radio"/>	<input type="radio"/>	<input type="radio"/>

COMMENTS

Full name:

Date : / /

Signature & company stamp



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