



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 suffering from a defect. This long-term composite technology is made of Kevlar® tape and specific bi-component epoxy resin.

R4D is the solution for a lasting pipe reinforcement.

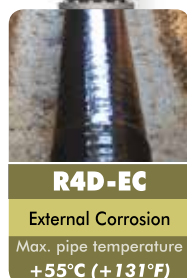
3X ENGINEERING has developed its own software called R.E.A (Reinforcekit Engineering Analysis) to design the composite repair and define the material requirements in accordance with ISO 24.817 & ASME PCC-2.

REINFORCEKIT® 4D RANGE



EXTERNAL DAMAGE

EXTERNAL & INTERNAL DAMAGE



USES

- Reinforce pipe suffering from:
 - internal and external corrosion
 - pinhole, leakage, crack, dent
 - mechanical damage
 - 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



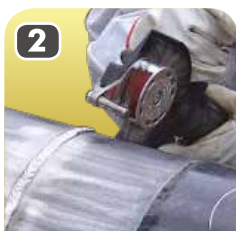
BENEFITS

- 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



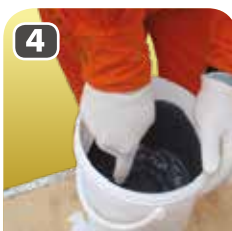
Designed as per
ISO 24.817
& ASME PCC-2



Surface preparation
Sa2½ / St3 and
roughness Rz > 60 µm



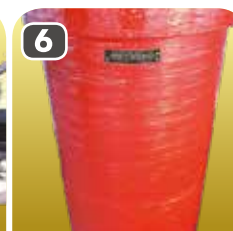
Filler application



Bi-component epoxy
resin preparation



R4D wrapping



Coating protection
& traceability tag



IMPLEMENTATION BY TRAINED AND CERTIFIED APPLICATORS ONLY

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