



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



Composite Repair Specialist



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		
R4D-EC	R4D-ECHT	R4D-ECHT	R4D-IC	R4D-HT+	R4D-S
External Corrosion Max. pipe temperature +55°C (+131°F)	External Corrosion Max. pipe temperature +110°C (+230°F)	External Corrosion Max. pipe temperature +130°C (+266°F)	External & Internal Corrosion Max. pipe temperature +60°C (+140°F)	External & Internal Corrosion - High Temp. Max. pipe temperature +150°C (+302°F)	External & Internal Corrosion - Subsea Max. pipe temperature +50°C (+122°F)



USES

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



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)
- Non-conductive repair
- No hot work
- Long-term performance

REINFORCEKIT® 4D IMPLEMENTATION STEPS

1 Designed as per ISO 24.817 & ASME PCC-2	2 Surface preparation Sa2½ / St3 and roughness Rz > 60 µm	3 Filler application	4 Bi-component epoxy resin preparation	5 R4D wrapping	6 Coating protection & traceability tag



IMPLEMENTATION BY TRAINED AND CERTIFIED APPLICATORS ONLY