



REINFORCEKIT® 4D

COMPOSITE REPAIR FOR PIPE REINFORCEMENT

According to ISO/TS 24.817 & ASME PCC-2



All diameters



-50° to +150°



Oil



Gas



Water



Onshore & Offshore



Pipe repair & reinforcement



Composite wrap



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 corrosion. This advanced permanent 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 ASME PCC-2 & ISO/TS 24.817.

REINFORCEKit® 4D RANGE



EXTERNAL CORROSION			INTERNAL CORROSION			
R4D-EC	R4D-ECHT	R4D-ECHT	R4D-S	R4D-VHT	R4D-IC	R4D-ICHT
External Corrosion	External Corrosion High Temperature	External Corrosion Top High Temperature	External & Internal Corrosion Subsea	External & Internal Corrosion Very High Temp.	Internal corrosion	Internal corrosion High Temperature
Maximum pipe temperature +55°C (+131°F)	Maximum pipe temperature +110°C (+230°F)	Maximum pipe temperature +130°C (+266°F)	Maximum pipe temperature +50°C (+122°F)	Maximum pipe temperature +150°C (+302°F)	Maximum pipe temperature +60°C (+140°F)	Maximum pipe temperature +90°C (+194°F)



TRAINING

Individual certificate provided by 3X ENGINEERING

To guarantee the quality and the sustainability of the R4D repair, the product must be properly installed by certified applicators

USES

- Reinforce damaged pipe: internal & external corrosion, abrasion
- Prevent from further corrosion / deterioration
- Repair pipe with leakage, dent, weld defect ...
- Sabotage: make illegal valve unusable

APPLICATIONS

- Onshore, Offshore and Subsea
- All pipe geometries (tee, elbow, oval pipe ...)
- All pipe diameters (no limitation)
- Pipe operating from ambient up to high temperatures
- High pipe pressure

BENEFITS

- Online repair (no shutdown required except if leakage)
- No heating or post-curing needed
- No pressure limitation
- No overload on corroded pipes
- Fiber not hazardous for users

REINFORCEKit® 4D IMPLEMENTATION STEPS

1	2	3	4	5	6
Designed as per R.E.A	Surface preparation Sa2½ / St3	Filler application	Resin preparation	Kevlar® and epoxy resin wrap	Coating protection & traceability