

# 3X ENGINEERING

## REINFORCEKiT® 4D



### HIGH-PERFORMANCE COMPOSITE REPAIR SOLUTION FOR PIPE REINFORCEMENT



**ONSHORE / OFFSHORE**

- Any pipe diameters
- Any pipe geometries
- High pressure
- °C -50°C to +150°C
- °F -58°F to +302°F
- Oil Gas Water



**REINFORCEKiT® 4D (R4D)** is a wet lay-up repair system, wrapped around the pipe to reinforce the damaged area, restore original pipe integrity and prevent further deterioration.

This composite technology, made of Kevlar® tape and bi-component epoxy resin, is a great alternative to metal clamp, welded sleeve and pipe replacement.

**3X ENGINEERING (3X)** developed its own software to design the repair and define the material requirements according to ISO 24.817 and ASME PCC-2 standards.

## REINFORCEKiT® 4D RANGE



### ONSHORE / OFFSHORE TOPSIDE



EXTERNAL CORROSION



INTERNAL CORROSION



THROUGH WALL DEFECT,  
LEAK, HOLE



MECHANICAL DAMAGE,  
DENT, CRACK, SABOTAGE ...

## REINFORCEKiT® 4D MAIN FEATURES & BENEFITS

- › Emergency Pipeline Repair System (EPRS)
- › Online repair (no loss of production)
- › Long-term performance (up to 20-year lifetime)
- › Designed according to the standards (ISO 24.817 and ASME PCC-2 compliant)
- › Versatile product with a large range of applications (O&G assets, plants, refineries, platforms, FPSO ...)
- › Suitable for transmission and distribution pipelines, piping, pipework ...
- › Suitable for any pipe geometries (straight, elbow, tee) including irregularities (welds ...), without pipe size limitation
- › User-friendly (no hot work, non conductive repair, light product)
- › Premium installation by trained and certified applicators only
- › Traceability using smart tag

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## REINFORCEKiT® 4D IMPLEMENTATION



1  
Designed as per  
ISO 24.817  
and ASME PCC-2



2  
Surface preparation  
Sa2½ / St3 & roughness  
Rz > 60 µm (2.4 mil)



3  
3X filler application



4  
3X bi-component epoxy  
resin preparation



5  
R4D wrapping



6  
Coating protection  
and smart  
traceability tag



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