FutureWrap HT Glass Technical Summary

ENGINEERED COMPOSITE SOLUTIONS

FutureWrap High Temp™

Repair system	Glass/HT
Overview	FutureWrap HT was developed for the repair of pipework pipelines (all components), tanks and vessels at elevated temperatures and is based on a glass cloth and a two-part post cured cure epoxy resin. Due to its excellent adhesion strength, FutureWrap HT can seal through-wall defects and re-instate the integrity of the damaged/corroded pipework. The reinforcement architecture of the fibers is designed to optimise the strength and stiffness of the repair for both through wall and non-through wall defects in pipework. A primer, silane, is used to enhance the chemical bonding of the epoxy to the metallic pipe surface. The technical specification is based on the qualification requirements of ISO 248171.
Applications	Pipework, pipelines (All components) tanks and vessels
Defects	Internal, external, through wall
Fibre type	E-glass - tri-axial stitched cloth ($0^0/45^0/-45^0$)
Resin type	Epoxy resin (two part) – Post cure
Maximum design temperature (^{0}C)	260
Maximum design pressure (through wall defect) (bar)	50
Maximum design pressure (non-through wall defect) (bar)	350
Modulus 0^0 (GPa)	21
Modulus 90^0 (GPa)	8.9
Poisson's ratio 0^0	0.5
Poisson's ratio 90^0	0.21
Shear modulus (GPa)	2
Thermal expansion coefficient 0^0 (mm/mm/^{0}C * 10^{-6})	15
Thermal expansion coefficient 90^0 (mm/mm/^{0}C * 10^{-6})	35
Design allowable strain 0^0 (mm/mm)	0.004
Design allowable strain 90^0 (mm/mm)	0.004
Energy release rate (J/m^2)	409
Cure time (hrs)	24
Chemical resistance	3<pH<10