



Figure: Zonal isolator with a MetaTHERM sealing element (A).

Problem

An issue preventing utility-scale geothermal energy is elastomer failure due to high temperatures and fluid chemistries.

Solution

MetaTHERM replaces elastomers to achieve superior lifetimes and durability in zonal isolators, packers, and sealing elements.

Feature	Benefit
Variable Poisson Ratio	Enhanced range of sealing element expansion fits a large range of wellbore sizes
Variable Thermal Expansion	Reduced thermal fatigue stresses increases usable lifetime
Stress Guides	Sacrificial subsystem failure replaces catastrophic system failure
Deployability	Easy installation with slim profile designed for large at-depth expansion
Corrosion Resistance	Superior resistance to organics, aqueous environments, and biodegradative agents
High Temperature & Pressure Compatibility	Casing pressures between 10 and 50 MPa (1.45 to 7.25 ksi) at 150 °C to 300 °C (300 °F to 570 °F)
Supply Chain Flexibility	Easy to subcontract manufacturing or additively manufacture near net shape