

# wel-lok™ CRT

## Cement Repair Tool

### Eliminate Gas Migration in Cemented Annuli

Differential Pressure	Up to 10,000 psi
Maximum Tool Pressure Rating	20,000 psi
Temperature Range	0 - 175°C
Conveyance	Eline, Slickline, Coiled Tubing, Drill Pipe
ADR Classification	Not classified as dangerous goods
Casing Grade	All grades
Max Well Bore Deviation At Setting Depth	0 - 86°

### Application

The wel-lok™ CRT (Cement Repair Tool) was developed to eliminate sustained casing pressure, or casing vent flow, in cemented annuli. It represents a faster, simpler and longer lasting alternative to traditional methods of repair. The tool is run rigless on electric line, sealing through casing perforations so that section milling is not required. The alloy flows under gravity like water, solidifying to create a non-porous seal in just minutes.

If fullbore access is required, the solid alloy can be milled out while still retaining a gas-tight seal in the annulus.

Importantly, BiSN wel-lok™ technologies eliminate the possibility of additional micro-annuli being formed over time, putting a stop to future gas migration once and for all. For well abandonment applications in particular, any other cement repair is a temporary fix.

*The wel-lok™ CRT is also available in heater and beads configurations.*

### wel-lok™ CRT Features

- Advanced bismuth alloy technology with expanding metal seals
- Low viscosity high density molten metal alloy flows through micro annuli
- Gravity fed, no need for surface pumping equipment
- Reduced operational footprint
- No moving parts, therefore high reliability
- Quick setting time - ready to pressure test in hours
- High expansion through tubing solutions available
- Wireline deployable single trip solution

### wel-lok™ CRT Benefits for Intervention

- Non-corrosive and not affected by H<sub>2</sub>S, CO<sub>2</sub> or acids
- Reduced environmental impact
- Permanent solution
- Can seal in damaged, irregular or oval tubulars



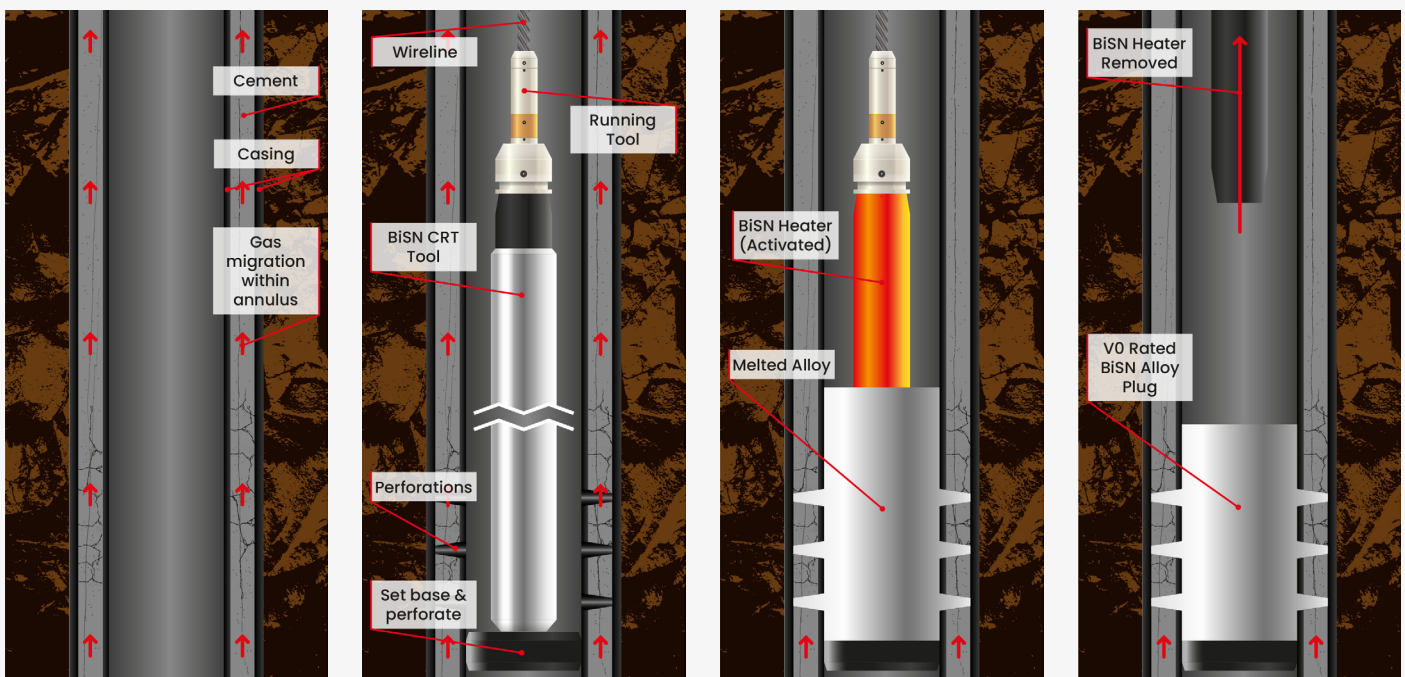
Completion Size	Tool OD	Max Sealing ID
4"	3"	8"
4.5"	3.5"	8.5"
5"	3.75"	9"
5.5"	4.25"	9.25"
7"	5.5"	12.5"
7.625"	5.75"	13"
9.625"	8"	16.5"
10.75"	8"	16.5"

### wel-lok™ Technology Overview

The wel-lok™ technology consists of utilising a modified chemical reaction heater to melt bismuth-based alloys downhole. The melted alloys have a viscosity similar to water, and a specific gravity 10 times that of water, allowing them to flow into the smallest areas of a wellbore without the need of any surface pumping equipment. As the alloys cool and solidify, they expand to provide a seamless gas tight seal that is non-corrosive and not affected by H<sub>2</sub>S or CO<sub>2</sub>.



### About the Application



As world leaders in the use of bismuth-based alloys and chemical reaction heaters in the downhole environment, BiSN has a portfolio of products aimed at tackling some of the most difficult issues faced by the oil and gas industry. We pride ourselves in building a responsive long-term working relationship with our customers and working closely with them to provide innovative solutions. With many hundreds of commercial deployments with all operators, in all conditions and with wide regulatory oversight globally, wel-lok™ technology is changing the face of downhole sealing in the energy industry. See our website for our extensive case study portfolio as well as further information about us and our investors.

