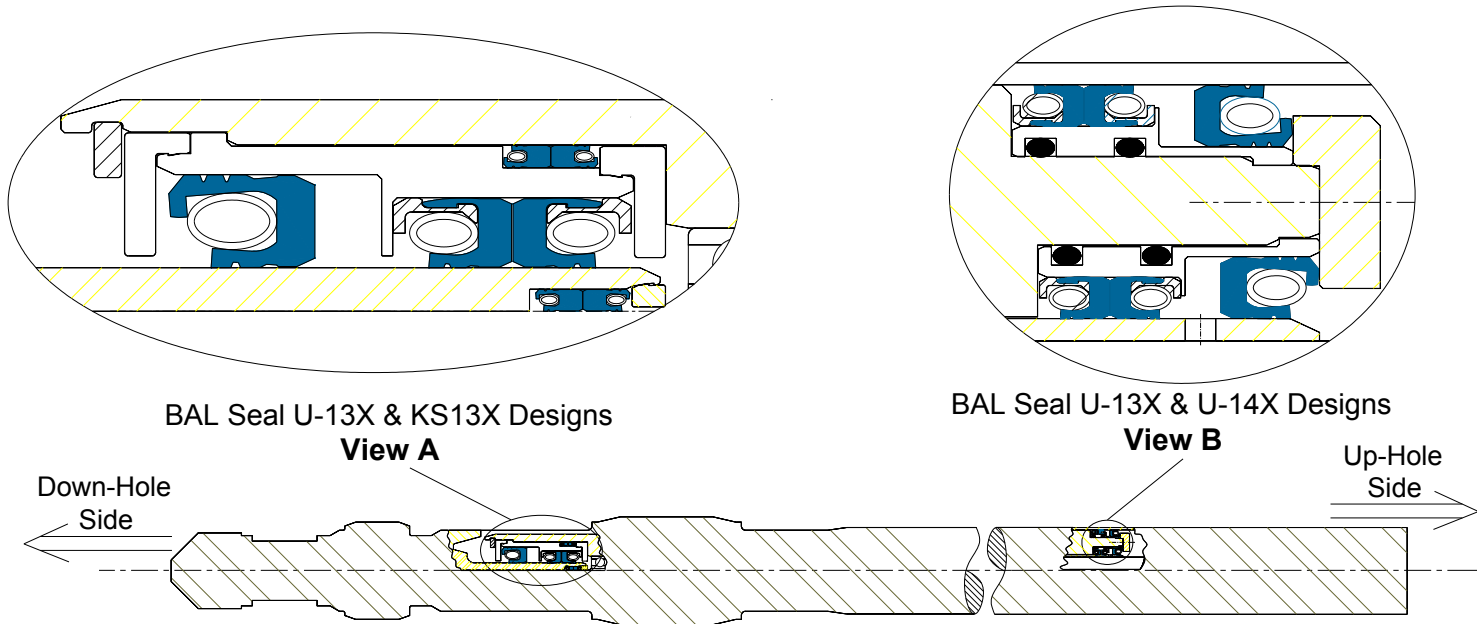


## BAL SEAL® SEALS IN DOWN-HOLE LOGGING TOOLS

The oil exploration drilling industry uses down-hole data logging tools in deep drilling applications. These tools contain delicate electronic components that are exposed to harsh and abrasive environments. The previous sealing technology for these applications included packings and elastomeric seals. These types of seals had a relatively short seal life, which caused costly, random operation failures.

Bal Seal Engineering, Inc. has extensive experience with long-term sealing solutions for these applications. For example, the isolation seal system shown below uses a barrier seal to keep the abrasive drill mud away from the second seal, which successfully blocks leakage into the protected pressurized grease pack. The results are optimal reliability and long seal life.



### Operating Parameters

Environment pressure:	Down-hole pressure 25,000 psi (1,758 kg/cm <sup>2</sup> )
Sealing pressure:	150-psi differential (11 kg/cm <sup>2</sup> )
Typical speed:	Slow
Temperature:	-40F to 400F (-40C to 204C)
Media:	Oil and mud
Additional:	Long seal life, variable pressure and temperature endurance

**Seal Selection:** U-13X, U-14X and KS13X series

### Features:

- Bal Seal series KS13X selected for excellent press-in metal locking ring retention system.
- Bal Seal series U-13X and U-14X selected for a higher pressure rating.
- Patented, canted-coil spring energizer provides near-constant force for long seal life.
- Excellent wear-resistant, filled PTFE seal material.
- Excellent sealing performance.
- Excellent seal material compatibility with various fluids.

For more information and technical assistance, consult the Technical Sales Department

PATENTS: The items described in this page include products that are the subject of issued United States and foreign patents or products where patents are pending, including the following: Patents 6,641,141 B2; 7,210,398 B2; 6,161,838; 5,992,856; 5,134,244  
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Bal Seal Engineering, Inc. is certified to ISO 9001 | [www.balseal.com](http://www.balseal.com)