LQR® Lock and Quick Release Connector for Mechanical and Electrical Applications

The LQR® Lock and Quick Release Connector consists of a piston with dual grooves and a single Bal Seal Canted Coil Spring® retained in a housing with a single groove. When the piston is inserted to the first groove, it is held in the “locked” position. When the piston is advanced to the next groove, the spring is re-oriented and breakaway force is dramatically reduced, facilitating easy release. The LQR allows for precisely-controlled lock and quick release functionality.

Applications:
Quick-release electrical connectors, solder-free electrical connections, underwater connectors, satellite/orbital connectors, mechanical lock connectors, quick fasteners, fluidic connectors and tamper-proof applications.

Operating parameters:
The LQR connector can be used in an unlimited range of sizes, temperatures (from cryogenic up to 1000°F/537°C or higher), almost any media and a nearly unlimited number of cycles*. The piston configuration can be adjusted to facilitate a wide variety of connection and removal forces, while the locking force can support extreme loads.

(Arrows describe direction of piston movement)

1. Low force insertion; 2. Spring snaps into locking groove (up to 40X removal force); 3. Piston pushed past first groove; 4. Spring snaps into second groove; 5. Second groove re-orient spring for easy removal; 6. Low force removal.

Features
- A locking connector that offers the added benefit of reliable, built-in electrical conductivity and a means of quick, low force release with a minimum number of components
- Integrated Bal Seal Canted Coil Spring® provides adjustable connection and removal forces - from a few grams to hundreds of pounds
- Adjustable locking forces - from 5 to 40 times the insertion force
- Repeatable insertion and removal forces**
- Wide variety of removal techniques - from simple push-pull to positive and tamper-proof indicators
- Housing or piston mounted versions available
- Temperature and media compatibility limited only by housing, piston and spring materials

For more information about this and other connecting, conducting and EMI shielding solutions, please contact your Bal Seal technical sales representative or visit www.balseal.com.

*The LQR system is custom engineered to specific application requirements. Its actual performance capabilities are subject to testing and verification in customer applications. **If locking mechanism is overloading, the spring will be damaged and will require replacement.