



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

PN-290-75 (Rev. 02, 02-27-20)

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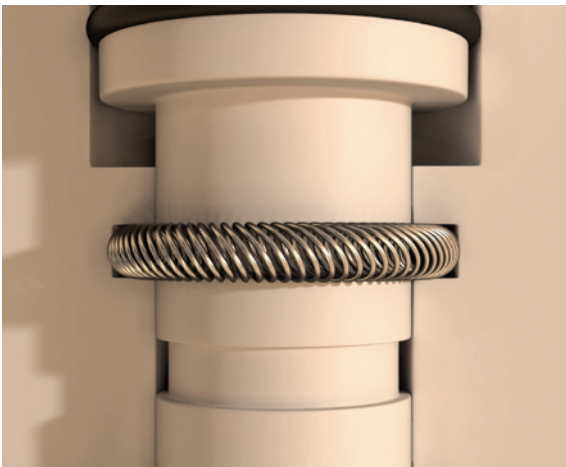
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Overview

The LQR® lock and quick release system gives engineers the ability to simplify equipment design while improving functionality. The system consists of a piston with dual grooves, and a single Bal Spring® canted coil spring retained in a housing with a single groove. When the piston is inserted into 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 the breakaway force is dramatically reduced, facilitating easy release.



The LQR® provides locking at the first groove position, and unlatches when the connector pin is advanced and removed.

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 a wide range of sizes, temperatures (from cryogenic up to 575 °F /300 °C or higher), most medias, and repeated mating cycles (typically from 10 to 100)*. The system can be engineered to facilitate a wide variety of insertion and removal forces, while the locking force can support extreme loads.

Features

- A locking system that offers the added benefit of reliable, built-in electrical connection and a means of quick, low-force release with a minimum number of components
- Integrated Bal Spring® canted coil spring provides adjustable insertion and removal forces—from a few grams to hundreds of pounds
- Adjustable locking forces—from 5 to 50 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 canted coil spring versions available
- Temperature and media compatibility limited only by housing, piston, and spring materials

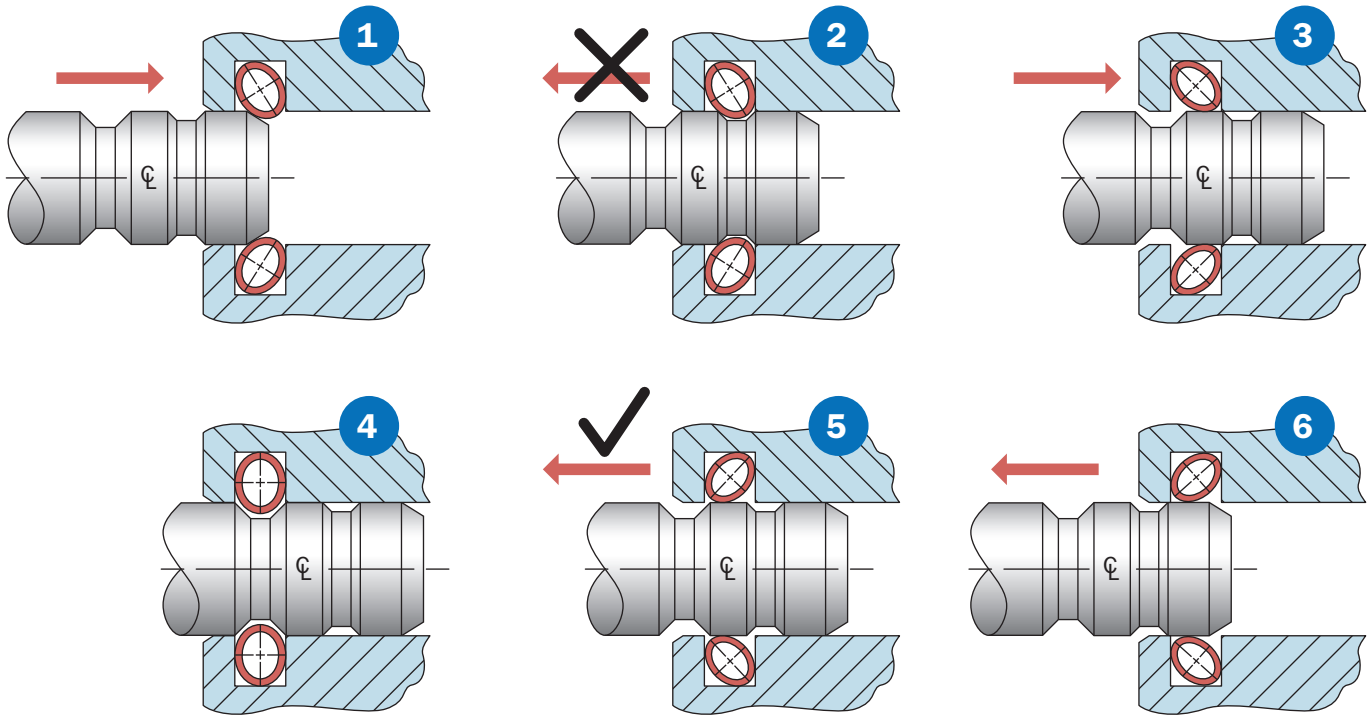
Our products are custom-engineered to improve the performance and reliability of your designs. For more information about this and other sealing, connecting, conducting and EMI/RFI shielding solutions, please contact us, or visit www.balseal.com.

*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 overloaded, the spring will be damaged and will require replacement.

LQR® Piston Movement Diagram

Arrows in diagram describe direction of piston movement.



1. Low force insertion

2. Spring snaps into locking groove
(up to 50X removal force)

3. Piston pushed past first groove

4. Spring snaps into second groove

5. Second groove re-orientates spring for
easy removal

6. Low force removal

It is essential that the customer run evaluation testing under actual service conditions with a sufficient safety factor to determine if the proposed, supplied or purchased Bal Seal Engineering, LLC products are suitable for the intended purpose and to confirm expected results. Bal Seal Engineering, LLC shall not be liable for any loss or damage of any kind or nature that may result from the use of, reference to, or reliance on the information contained herein, including but not limited to consequential, special (including loss of profits) direct, indirect, incidental or similar damages, even if Bal Seal Engineering, LLC has been advised of the possibility of such damages. Products contained herein may be covered by all or in part by one or more of the following U.S. Patents: 8,054,459. Products contained herein may be covered all or in part by various pending U.S. Patents.

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