



Common Problems the Right Torque Profile Can Solve

Gradual Position Drift

The Problem: Doors, lights, and other articulating arms slowly drift away from desired position over time or require complicated locking mechanisms to hold in place.

The Solution: Symmetric Torque

Summary: Symmetric torque prevents drift and makes adjustment feel elegant and comfortable in both directions. With consistent torque in both directions movement is smooth and users can easily “set and forget” the position of the device with confidence.



A Heavy Lid

The Problem: Users struggle to lift a heavy lid when they need to also overcome the holding force of a traditional positioning solution.

The Solution: One-way Torque

Summary: In addition to the challenge of overcoming gravity, traditional symmetric positioning solutions require the user to also overcome the holding force of the positioning element. A One-way torque element eliminates positioning torque in the upward direction making lifting easier, while still retaining full positioning torque in the downward direction to hold the lid firmly in place. This makes industrial equipment lids easier to open and hold in any position. It also increases product safety by preventing falling lids that bump heads and pinch fingers.



Bouncing Out of Position

Problem: Vibrational forces cause devices to bounce up

Solution: Differential Torque

Summary: One-way solutions can create issues in applications with significant external movement such as off-road vehicles or airline interiors. As external forces act on the device, a device with no torque in the upward direction moves up freely when bounced, but the torque in the downward direction prevents return to its original position, causing the device to slowly bounce upward over time. A differential torque profile provides just enough upward torque to prevent positional bounce, while still providing full holding force for positioning.



Loose Joints that Rattle

Problem: Joints that are loose enough to move freely feel cheap and flimsy and may cause an audible rattle in applications with vibration.

Solution: Symmetric Torque

Summary: Robust products have a smooth, solid feel. Motion that rotates freely but doesn't feel loose creates user confidence in the quality of the product. Adding a symmetric torque element ensures a smooth feel and eliminates rattle and squeak over any range of motion.



Quality Positioning Solutions from Reell

Reell offers a wide variety of standard and custom solutions with Symmetric, Differential, and One-way torque profiles to solve challenging position control problems and create a premium user experience.

Advantages of Reell's torque technology:

- High torque density to provide maximum torque in a small package, preserving design space.
- Consistent smooth torque over a long cycle life with no adjustments required to maintain desired torque profile.
- Near zero spring back. When a user moves something into position it stays where it was put and doesn't "spring back" on release, a common issue found in other products.

