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Beyond the Spring™



The Preferred  
Global Supplier  
of Spring Solutions  
for Windows  
& Shades

**A Vulcan Spring  
Case Study**

**PULLBOX® Pro**

# Optimizing Shade Tension Since 2018

## Challenges

With construction in both commercial and residential settings rising, the demand for different window shade styles has also increased. In commercial construction, we're seeing more expansive buildings with open spaces and larger windows.

Each window, or section of windows, presents unique challenges when designing a custom shade. Extension and retraction need to be smooth, and the shade itself needs to be taut through the entire length of travel. Not to mention, window manufacturing is becoming more sophisticated and energy efficient, which requires innovation in window spring assembly. Finding the right counterbalance solution to pair with the shade is crucial to a successful project.

## Solutions

Most commercial shades are actuated by an electric motor. To keep appropriate tension on the shade, the force of the motor is commonly balanced with force from a cable. The cable force is generated by a spring housed within a product like the PULLBOX® Pro.

The PULLBOX® Pro tether keeps motorized shading and skylight systems taut from top to bottom.



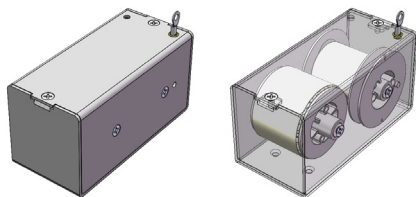


# PULLBOX® Pro Force Variations

## Results

The PULLBOX® Pro uses a Contorque® spring to exert a controlled torque profile on a cable reel. This cable reel dispenses cable at consistent tension. The torque of the spring is tuned to ensure constant force output from the cable, enabling smooth shade performance. The PULLBOX® Pro is offered in pound-forces of 3.5 lbf, 8 lbf and 10 lbf, supporting a wide variety of shade and motor configurations. Additionally, left- and right-hand configurations allow a pair of PULLBOX® Pros to operate together.

The images below depict a PULLBOX® Pro in the right-hand cable configuration. The transparent view depicts the spring, mounted over two drums, and the cable reel. The small ring protruding from the top of the case is the cable mounting feature.



The PULLBOX® Pro is a durable application for high-performance project needs. It's made with a 304 stainless steel case/housing, .055" diameter cord, polyester sleeve over a Kevlar core and 13' cable extension length.



When looking for a company to partner with on current and future projects, it's important to work with someone that can prioritize your unique needs based on the intricacies of the project. Having an experienced and knowledgeable staff that can help resolve engineering problems is key to the overall success of your project.

Through professionalism and industry experience, Vulcan Spring has exceeded clients' needs, and the PULLBOX® Pro offers solutions for many different projects.

## About Vulcan Spring

Vulcan Spring is the preferred global supplier of medium- and high-volume custom spring solutions, headquartered in Telford, Pennsylvania. With innovative machinery, tooling, and engineering, we deliver spring solutions for the most challenging applications. For industrial equipment, medical devices, POP displays and beyond, we provide quality, industry-leading spring production and assembly while streamlining your experience from concept to delivery.



Contact us with questions or about a custom need.  
Our responsive and helpful team is standing by.

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