

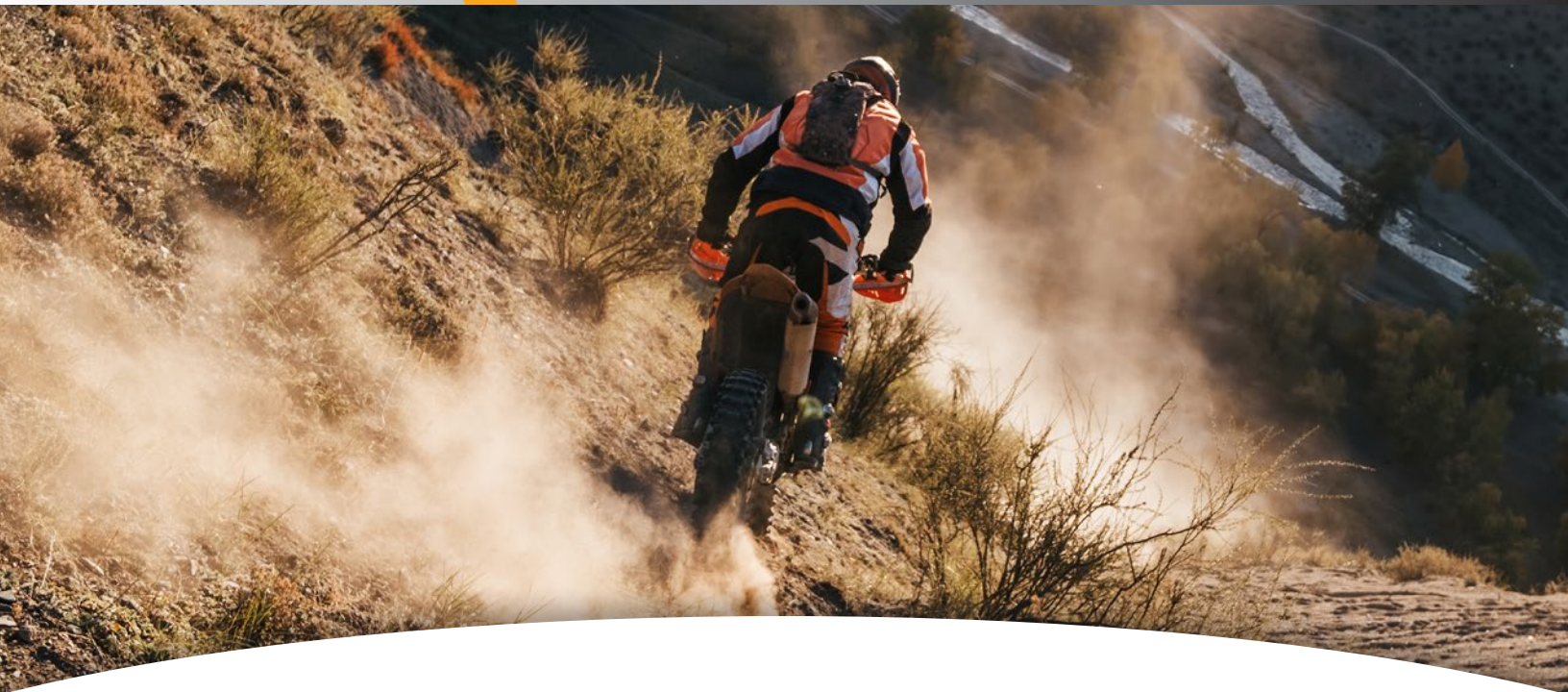


BUILT FOR
PERFORMANCE

High-Heat Stabilizer Link Utilizes
Rod End with PTFE Liner



CCTY



EXECUTIVE SUMMARY

Off-road vehicles are built to tackle rough terrain, but those bumps can take a toll on suspension systems. A stabilizer link is often used to ensure a smoother ride, whether on or off the beaten path.

When CCTY learned that a specific suspension system would operate at extreme temperatures of 350 to 400°F, the engineering team recognized a key challenge: high heat would compromise the durability of the nylon resin traditionally used in the rod end.

To solve this, CCTY's engineering team developed an innovative solution—a self-lubricated, PTFE-backed bushing. This advanced material not only withstands high temperatures but also delivers exceptional, long-lasting performance in demanding conditions.

THE CHALLENGE

Designing a stabilizer link for a heat-intense environment is no small feat, especially when it's positioned near the engine and exhaust system—two of the hottest areas on a motorbike. The challenge lies in finding a rod end assembly capable of withstanding these extreme conditions without sacrificing performance.

Without a stabilizer link, riders experience severe movement in the transmission and motor, which rocks fore and aft as well as side to side during downshifts for more torque. Traditionally, resin-based rod ends are used to stabilize this rocking and pivoting motion between the frame, transmission and motor, performing well in temperatures up to 300°F.



Since our conversation with the OEM started in the design phase, we were able to adjust the rod end prior to production. Questions we raised avoided a potentially costly warranty issue.

– **Dave Olson**
CCTY Strategic Sales Manager

However, in this application, the unified movement of the engine and transmission generates heat beyond the resin's threshold, potentially causing it to melt. Additionally, nylon resin in this environment becomes prone to squeaking due to environmental debris, further compromising performance.

THE SOLUTION

CCTY resolved the challenge of designing a rod end that could endure the extreme heat within a confined area by incorporating a TSA bushing—a self-lubricated, PTFE-lined bushing engineered for high-temperature environments. With the ability to reliably perform in conditions ranging from 350 to 400°F, this innovative solution offers three key benefits:

- **Maintenance-Free Performance:** The self-lubricating design eliminates the need for greasing, reducing maintenance efforts.
- **Heat Resistance:** The metal-backed TSA bushing excels in high-heat environments, maintaining optimal performance even under extreme conditions.
- **Noise Reduction:** The self-lubricating PTFE material minimizes noise, ensuring a smoother and quieter riding experience.

THE RESULTS

The OEM was able to retain the original exhaust and engine design, thanks to the TSA bushing's ability to perform flawlessly within the existing configuration. For several years, this bushing has delivered reliable performance in the rod end assembly, proving to be a game-changer that:

- Eliminates potential stabilizer failures with a robust, heat-resistant solution;
- Reduces downtime and ensures consistent, maintenance-free performance; and
- Delivers peace of mind with a dependable, warranty-secure product.

Additionally, the tie rod and rod end are delivered as a pre-assembled unit, significantly reducing the OEM's production time and costs while streamlining the manufacturing process.





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