

Cylinder Rod Guide

Industry	Fluid Power
Dura-Bar Grade	65-45-12 Ductile Iron
Original Material	Continuous Cast Ductile Iron
Problems Solved	Material Quality, Machining Cycle Time



The manufacturer of a cylinder rod component was experiencing material quality issues and challenges with machining cycle times. They were also using a competitive continuous cast iron bar stock. Bar stock is bar stock, right? Actually – no, **not all bar stock is created equal!** Dura-Bar's continuous cast process and material properties result in superior performance and improved machinability, contributing to an overall lower total parts cost.

Carbides are formed in cast iron when the chemistry is not properly controlled and/or when the casting process allows too quick of a cooling rate after casting, and the cast iron "chills". When these carbides are formed, the machinability of the cast iron is negatively affected. Speeds and feeds cannot be maximized and the propensity for premature tool wear and possible failure increases. Dura-Bar ductile irons are heavily monitored throughout the melt and casting process to assure proper chemistry is maintained as to not allow carbides to form.

To reduce the formation of slag, the Dura-Bar continuous cast process includes only quality charge materials like pig iron and steel plate. Slag can easily end up in a cast bar since it is part of the melting and casting metal process. Slag inclusions, which can find their way into bars, can "breakout" during machining, resulting in surface voids. Slag/dross can also create inconsistencies within the material altering surface finish and appearance. The proprietary continuous cast process used to produce Dura-Bar is optimized to remove slag.

This cylinder rod component is now produced from Dura-Bar continuous cast iron and the manufacturer is no longer experiencing material quality issues and has increased machining cycle times further proving that not all continuous cast iron is created equal.