Dura-Bar®
Continuous Cast Iron Bar Stock

Technical Brief

Dura-Bar's Top 4 Machining Tips

Cost savings generated by using Dura-Bar as a replacement for steel have been well documented. Dura-Bar's superior machinability and minimal need for deburring means decreased cycle times, and therefore more parts per hour can be produced. Using Dura-Bar also yields significant improvements in tool wear, chip control, and surface finishes. Dura-Bar weighs 8% less than steel and is quieter in operating parts due to its vibration damping quality.

Dura-Bar's superior machinability stems from the graphite contained in its microstructure. Graphite enhances machining by acting as a natural chip-breaker. It reduces friction on the insert and dissipates heat, thereby extending tool life. Graphite also improves overall wear resistance in the final application.

The key to getting the most benefit and cost savings from Dura-Bar's inherent advantages is to check your machining methods for the following, and make some slight adjustments if needed. Specifically:

1. **Use the Correct Inserts –** A common mistake is to substitute inserts not specifically designed for the cutting of Dura-Bar, or designed specifically for steel. Any general purpose grade isn't going to perform. Standard coated carbide inserts developed specifically for cast iron are best. Also, for best results when drilling, use carbide tooling. The proper coating is critical for optimal performance. To obtain further details on inserts and their coatings, contact Dura-Bar Sales.
2. **Skip the Chip Breaker –** Since typical machining of Dura-Bar does not require any elaborate chip breaker design, satisfactory results can be achieved. In certain instances, geometries used in chip breaker designs may be used to achieve desired surface finishes.
3. **Use the Right Coolant –** Based on Dura-Bar's experience, the best results are achieved with either a water soluble or semi-synthetic coolant at a 4-6% level of concentration. This is because the water draws out more heat, and the 4-6% concentration adds both lubricity for friction reduction and additional corrosion/rust protection.
4. **Run it Faster –** Dura-Bar's dense, fine-grained microstructure makes it especially clean and consistent, allowing for faster machining speeds. The absence of sand and carbides typically found in castings for example, allows the use of higher surface footage (sfm) with confidence, and without sacrificing your current feed rates.

Remember, all of these recommendations are made assuming you have a sound and rigid setup.

To learn more about machining Dura-Bar, check out the Dura-Bar Machining Guide which includes machinability ratings and wear rates of specific grades of Dura-Bar vs. steel grades, recommended machining speeds and feed rates, and shows how Dura-Bar chips are consistent, controllable and lead free.

Additional information about the machinability benefits of Dura-Bar and The Dura-Bar Machining Guide can found at www.dura-bar.com/advantages/machinability.

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