



Milling

## 3 Tips for Successful Hard Milling

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Even common hardened tool steels in the mold and die industry present unique challenges. Take, for example, D2 tool steel that can be heat treated to 60-62 HRC. Because of the added chromium content, this tool steel is not only hard but also tough, making it machine similar to tool steel that is 62-65 HRC.

420 stainless steel is also very common in the mold industry because it is wear-resistant and can be polished to a mirror finish. Although this material is typically heat-treated to 48-52 HRC, it still retains its sticky stainless-steel properties and is prone to causing Built-Up Edge (BUE) making running the proper surface feet per minute crucial.

**Pro Tip:** To reduce BUE when machining this material, utilize air/oil mist.

### USE RIGID HOLDERS

To achieve maximum tool life, high-precision holders are crucial to hard milling. For ultimate success, your run-out needs to be kept to less than 0.0004". This type of precision can be achieved by most shrink fit holders, milling chucks, high-precision collet chucks and select manufacturers' end mill holders. A precise holder also ensures the accuracy of the process, whereas a less secure holder may cause unpredictable tool life and produce surfaces that are out of tolerance.

### RECOMMENDED CUTTING PARAMETERS ARE YOUR FRIEND

Through meticulous research and years of first-hand experience, we have developed specifically created cutting parameters. Cutting data is optimized per the tool's design, specifications, and for specific material groups. These specifications should always be used as a starting point. Modifications can be made depending on the application.

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