Specialty Materials

Woman owned small business

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Machining of Boron/Epoxy and Hy-Bor® Composites

Boron and Hy-Bor® composites can be machined by all standard methods.

- **Drilling with Diamond Tools**
- **Profile/Edge Machining with Diamond Tools**
- **Grinding with SiC abrasices**
- **Diamond Cutoff Wheels**
- **Water Jet Cutting**

The following conditions are recommended for optimal machining of Boron and Hy-Bor® composites:

*All parts or panels should be fully supported to prevent ply delaminating during machining.

- **Materials**
  - Metal-bonded or resin-bonded diamond tooling and cutting wheels work the best. Specialty Material recommends the Continental Diamond Corporation for diamond based tooling (https://www.cdtusa.net/)
  - Silicon carbide and alumina wheels can be used
- **Coolant**
  - Dry cutting is possible, but flooding with water-based coolant extends cutting tool life
  - Coolants should be used for grinding to prevent matrix degradation
- **Speeds**
  - Cutting speeds should range from 1900 to 3100 feet per minute
  - In-feed rate for cutoff can be as high as 4 to 6 inches per minute
  - Grinding speeds should range from 3000 to 8000 surface feet per minute