

# Hard Ferrous Steel (Cermets - Tool Steels)

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## *Color Guide to Materials Preparation*

Hard ferrous materials sometimes referred to as “Cermets” or “Tool steels” which means a ceramic oxide mixing in with your typical ferrous materials (Fe, Ni, Mo, and C) like tungsten carbide. Sometimes we can also referred them as carburized case harden steels with Rockwell hardness of RC 50 – 70 The difficulty is preparing these tough materials is trying to remove the previous damage. When looking at the type of abrasives to use, diamond, SiC and Al<sub>2</sub>O<sub>3</sub> one can also chose the different form in which it comes (diamond disc – metal bond, diamond PC or diamond paste).

### **Hardware** I

1. Extec Labcut 250B Abrasive Cutting Machine ([www.extec.com/labcut250B](http://www.extec.com/labcut250B))
  2. Extec Labpress 40 Automatic Mounting Press ([www.extec.com/labpress40](http://www.extec.com/labpress40))
  3. Extec Labpol 12-3DI Auto Polisher/Grinder ([www.extec.com/labpol12-3DI](http://www.extec.com/labpol12-3DI))
- or
4. Extec Labpol 12 Auto Polisher/Grinder ([www.extec.com/labpol12](http://www.extec.com/labpol12))

### **Sectioning** II

A rubber – resin aluminum oxide abrasive blade is preferred for tool steel RC 60 or higher materials

### **Mounting** III

Compression mounting with ceramic filled particles in very important in maintaining the edge. EXTEC edge retention epoxy compound phenolics is number 14505.

## Grinding/Polishing Method -- Hard Ferrous Steel (Cermets - Tool Steels)

Surface	Code	Abrasive/Type Size	Lubricant	Code	Pressure (psi)	Time	Wheel Speed	Head Speed/Direction
Resin Flex Disc	VI	30um Diamond	EXTEC Universal Diamond Extender	I	5 psi	120 seconds	120 rpm	60rpm/Comp
Metal Mesh Disc	VI	15um PC Diamond	EXTEC Universal Diamond Extender	I	5 psi	3 minutes	240 rpm	60rpm/Contra
Duraplan Ultra	VI	9um PC Diamond	Water Soluble Diamond Extender	I	5 psi	3 minutes	240 rpm	120rpm/Comp
Duraplan Plano	VII	3um PC Diamond	Water Soluble Diamond Extender	I	5 psi	3 minutes	240 rpm	120rpm/Comp
Optigam	VII	1um PC Diamond	Water Soluble Diamond Extender	I	5 psi	2 minutes	120 rpm	60rpm/Contra
Ultragam	VIII	Multipolish Blend	The last 10 seconds wash with Distilled Water		5 psi	120 seconds	120 rpm	60rpm/Contra

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