OPTI Knife Grinding Instructions

When grinding WKW's exclusive OPTI knife, the procedure is the same as on regular steel knives with a couple of exceptions. The best results are achieved when the knife is ground to a 45° or 50° bevel, or in other words, a more "blunt" bevel that leaves more knife material at the cutting edge. On most profile grinders, this is obtained by setting the clearance angle on the grinder at either 35° to 30° for a 10° hook angle head or by setting the clearance angle at 25° to 20° for a 20° hook angle head.

In addition, it is important to be careful not to chip the cutting edge on the OPTI knife as it is much harder than conventional tool steels. A better finish will be obtained on OPTI knives if the grinding wheel RPM is increased by 500 RPM above the normal tool steels for the rough and finish grind. Be sure, however, to check with your wheel manufacturer and never exceed maximum recommended RPM.

Never grind or hone the face on OPTI knives as this may remove ultra hard surface of the knife.

Formulas and Conversions

Rim speed in ft/min   RPM x Dia. in inches ÷ 3.8197
 Example: 3600 x 10" ÷ 3.8197 = 9424.82 ft/min

Chip load in inches/tooth Feed rate in ft/min x 12 ÷ RPM x no. of teeth
 Example: 166fpm x 12 ÷ 6000 x 4 = .083

Number of teeth   Feed rate in ft/min x 12 ÷ chip load x RPM
 Example: 166fpm x 12 ÷ .083 x 6000 = 4

Feed rate in ft/min   Chip load x RPM x no. of teeth ÷ 12
 Example: .083 x 6000 x 4 ÷ 12 = 166ft/min

Knife marks per inch   RPM x no. of teeth ÷ 12 x feed rate in ft/min
 Example: 6000 x 4 ÷ 12 x 166 = 12

RPM   Feed rate in ft/min x 12 ÷ no. of teeth x chip load
 Example: 166 x 12 ÷ 4 x .083 = 6000

To find:
  Inches   millimeters ÷ 25.4
       20mm ÷ 25.4 = .7874
  Inches   millimeters x .03937
       20mm x .03937 = .7874
  Ounces Grams x .03527
       5g x .03527 = .17635 ounces
  Grams   Ounces x 28.349527
       .17635 x 28.349527 = 5 ounces