

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 Example:	$\text{RPM} \times \text{Dia. in inches} \div 3.8197$ $3600 \times 10'' \div 3.8197 = 9424.82 \text{ ft/min}$
Chip load in inches/tooth Example:	$\text{Feed rate in ft/min} \times 12 \div \text{RPM} \times \text{no. of teeth}$ $166\text{fpm} \times 12 \div 6000 \times 4 = .083$
Number of teeth Example:	$\text{Feed rate in ft/min} \times 12 \div \text{chip load} \times \text{RPM}$ $166\text{fpm} \times 12 \div .083 \times 6000 = 4$
Feed rate in ft/min Example:	$\text{Chip load} \times \text{RPM} \times \text{no. of teeth} \div 12$ $.083 \times 6000 \times 4 \div 12 = 166\text{ft/min}$
Knife marks per inch Example:	$\text{RPM} \times \text{no. of teeth} \div 12 \times \text{feed rate in ft/min}$ $6000 \times 4 \div 12 \times 166 = 12$
RPM Example:	$\text{Feed rate in ft/min} \times 12 \div \text{no. of teeth} \times \text{chip load}$ $166 \times 12 \div 4 \times .083 = 6000$

To find:

Inches	millimeters $\div 25.4$ $20\text{mm} \div 25.4 = .7874$
Inches	millimeters $\times .03937$ $20\text{mm} \times .03937 = .7874$
Ounces	Grams $\times .03527$ $5\text{g} \times .03527 = .17635 \text{ ounces}$
Grams	Ounces $\times 28.349527$ $.17635 \times 28.349527 = 5 \text{ ounces}$