

Machining of Polyurethanes: Grinding

Urethanes 55A to 80A durometer can be ground successfully in an engine lathe using a tool post grinder. Use low turning speeds - below 150 rpm, with the lathe running in reverse. Start with the grinder feed rate set for .005 inches per revolution. Use a slower feed rate to improve surface finish or to remove more material by taking a deeper grind.

In cases where larger amounts of material must be removed, turn the piece down with a cutting tool to within .020" of the finished dimension before grinding.

We have found that a Radiac Por-OS-Way 46 grit wheel with slight radius on the leading edge works well. RPM of the wheel should be in the 2250 to 3250 range. Again, low work-piece turning speed of 150 rpm is a good starting point. Fine abrasives can be used for final polishing.

Urethane above 80A durometer usually requires some type of coolant, however it can sometimes be ground dry. Water is good coolant, and can be applied with a brush or with a fine spray mist. Apply spray coolant on long traverse grinds. On a plunge grind where the part width is less than the wheel width, apply water with a brush to keep the urethane wet.

We recommend that the grinder be equipped with a dust collector or the operator wear an approved dust mask when grinding or sanding urethane.