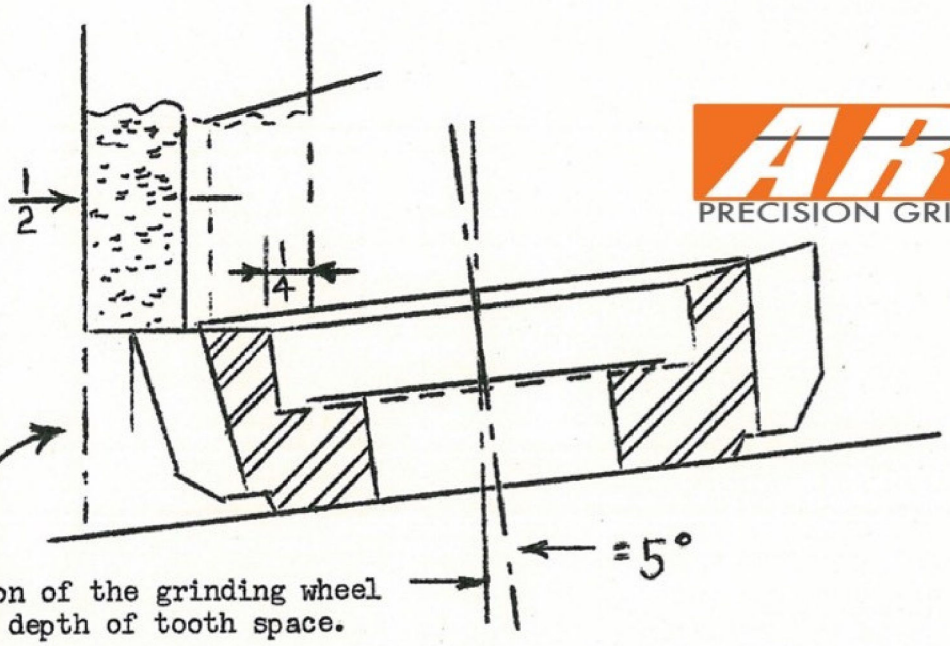
METHOD OF SHARPENING SPUR GEAR SHAPER CUTTERS



This position of the grinding wheel governed by depth of tooth space.

Disk and hub cutters can be sharpened on a rotary surface grinder, the cutter being centralized on and held by a magnetic chuck. Shank cutters should be held in a tapered-hole adapter centralized on the chuck.

For "rough" sharpening Gear Shaper cutters a vitrified grinding wheel 12 or 14 inches diameter, 1 inch face width, 60 grit, grade H is used. This should be operated at a surface speed of 5200 to 6000 feet per minute. The wheel should be traversed about 45 strokes per minute taking a cut of 0.001 inch per traverse. 0.002 to 0.004 inch should be left for finish sharpening, and wet grinding either with plain water or a compound, is preferred.

For finish sharpening disk and hub cutters, the following grinding wheels are used: Norton No. 370400-G9E; Carborundum C-400-PBY. These are special fine-grain, soft-bond wheels, 12 inches diameter, 1/2 inch wide. The wheel when new is operated at a speed of 5200 to 6000 surface feet per minute. The work is rotated at 160 R.P.M., and the depth of cut is approximately 0.00025 inch per traverse at a feed of 20 inches per minute. For disk type cutters less than 1 3/4 inch diameter, and shank cutters, the wheel specifications are the same, but the diameter should not exceed 5 inches with 1/2 inch face width. For very small diameter shank cutters, it is necessary to use a smaller wheel to obtain a true 5° top rake angle. The same speeds and feeds given for disk cutters are used. Plain water is used as the coolant. After the final vertical feed of the cutter to the wheel, the wheel is left in contact and traversed until it stops "sparking".

The wheel should not leave the cutter when grinding. The inner edge should be traversed to the root diameter, see illustration, and the vertical feed made when wheel is in the position indicated by the dotted lines.

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