Toprem Letter	Pinion Whole Depth at Outer Cone Distance
F	Up to 0.275"
E	0.276" to 0.375"
C	0.376" to 0.500"
B	0.501" to 0.650"
A	0.651" to 0.800"
Z	0.801" and Up

Another specification for cutters relates to the direction in which the cutter rotates when it is cutting. A right-hand cutter is one which rotates clockwise when viewed from the back; a left-hand cutter rotates counterclockwise. The cutter spindle of the No. 116 Hypoid Generator arranged for general work may be run in either direction. Therefore either hand of cutter may be used on this machine. The machines arranged for production work are normally set up for using only right-hand cutters. While a given gear or pinion may be successfully cut with either hand of cutter, there are definite advantages to be obtained by using the hand of cutter which best suits the particular requirement of the gears being cut.

When the hand of cutter is the same as the hand of spiral of the gear or pinion being cut, the direction of the cut is from the small end to the large end of the teeth. For roughing flat gears (greater than 3 to 1 ratio), cutters with the same hand as the hand of spiral are used so that the thrust of the cut forces the work against the chuck.

On this machine, right-hand cutters climb-cut on the up-roll and left-hand cutters climb-cut on the down-roll. It has been determined that better finish and better cutter life are obtained when climb-cutting provided the gears or pinions are rigidly supported during the cutting operation. This is true for both roughing and finishing. This machine can be set-up to cut on either the up-roll or the down-roll but normally the cutting is done on the up-roll. Therefore, right-hand cutters will be most commonly used when generating roll is employed.

When ordering cutters from the Gleason Works, the following information should be furnished with the order:

1. Summary number, if the summary was furnished by the Gleason Works. Otherwise send a copy of the summary.
2. Type: Roughing or Finishing.
3. Member: Pinion or Gear. For pinion finishing cutters, specify whether inside or outside cutting blades are required.

If a summary or summary number cannot be furnished when ordering cutters, then furnish the following information:

1. Kind: Spiral bevel, Zerol bevel, or hypoid. Generated or Formate.
2. Type: Roughing or Finishing.
3. Size: Average diameter (or point diameter on pinion finishing cutters), point width, blade letter, blade radius, and on pinion finishing cutters whether inside or outside cutting blades are required.
4. Pressure Angle: Cutter number and pressure angle.
5. Maximum Tooth Depth.
6. Toprem Letter.
7. Hand.