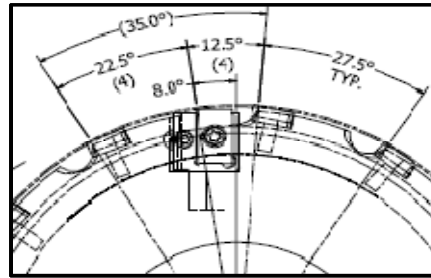
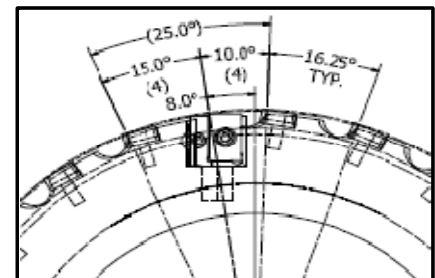


4 Inch Goal Mill



6 Inch Goal Mill



8 Inch Goal Mill

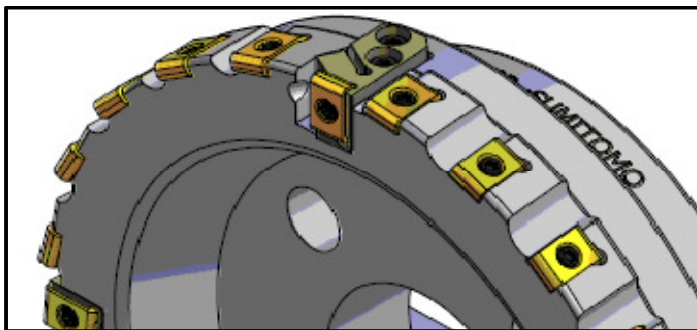


FIG. 1

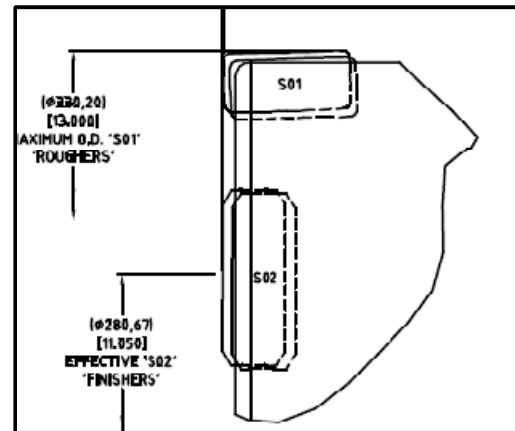


FIG. 2

Since we introduced the Goal Mill a little over a year ago there have been some questions related to the insert spacing on the fixed pocket periphery inserts. The specific question has come from some sales people and some end-users in various forms but the basic question is: ***"Since the wiper cartridge replaces a periphery insert position is it not true that the inserts following the wiper cartridge have double the calculated chip load of all of the other periphery inserts? And, if that is so, how does that affect the tool life and overall performance of the Goal Mill?"***

First, let us address the spacing question. The simple answer is **"YES, the spacing is different for the insert that trails the wiper cartridges"**. The main reason for this is to be able to get the wiper cartridges as far out on the periphery as possible (See Fig. 1). This is a very large technical benefit for the Goal Mill versus our competitors design.

Our competitor's designs have the wiper cartridges well inside the outside diameter of the cutter body (See Fig. 2).

By having our wiper cartridge farther to the outside of the cutter diameter the periphery inserts and the wiper insert exit the workpiece almost simultaneously. Whereas on the competitor's cutter the periphery inserts exit the workpiece long before the wiper insert. This can (and does) cause a visual line on the exit of the workpiece presenting a possible quality issue on the part.

In order to offset the chip load issue we design the cutters with a different pitch for the insert pocket trailing the wiper cartridge (See pictorials of the 4, 6, and 8 inch standard cutters above). This provides a chip load on the trailing insert of something less than double the chipload of the other inserts (ranges from 30% to 50% depending on cutter diameter). Also remember that when calculating the chip load you are calculating it only at the centerline of the cutter. Because of "average chip thickness" the chip load varies from lower to higher as it approaches the centerline of the cutter.

It is also very important to note that ***the failure mode for cutters of this type is the wiper - not the periphery inserts***. Since it's introduction, the Goal Mill has never lost a test with tool life increases as much as three times that of the competitor's cutters. So the real answer to this question is **"YES, BUT IT DOES NOT MATTER"**.