

Newsletter Newsletter



MASTER TOOL, LLC
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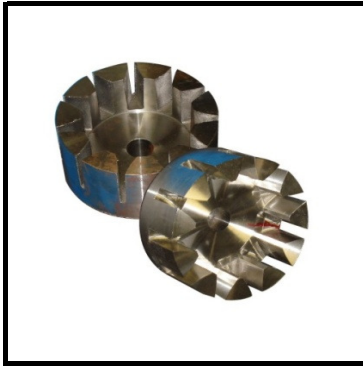


Fig. 1

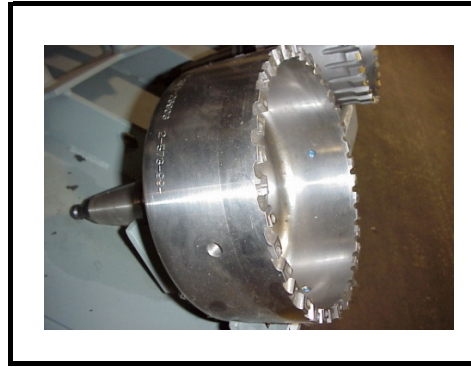


Fig. 2

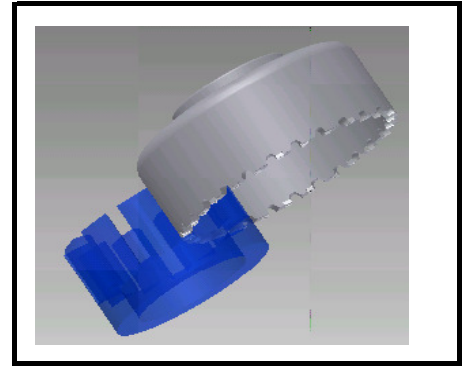


Fig. 3

A few months ago, Master Tool was asked to develop a series of hollow mills to machine vanes for a pump manufacturer in the Midwest (see rough and finished parts in Fig.1).

These vanes would be machined on a horizontal machining center by feeding the milling cutter down onto the part (not unlike a hole saw) (see Fig.3). The milling cutter would machine two vanes at a time - all of the way to the bottom of the part. The part would then be indexed on the table to the next two vanes. and continue until all of the vanes are machined.

The customer was using current tooling that he was not exceptionally happy with it. The current tool had only one (1) cutting edge and had poor tool life. One problem was that the vanes were Cast Iron, Alloy Steel and Stainless Steel and the customer wanted one grade of carbide to machine all of his parts.

The local Sumitomo sales person recognized the opportunity and he contacted Master Tool. In reviewing the project the Master Tool designers recognized that the competitor's tool did not have an insert engaged on the part at all times.

Anyone with milling experience realizes that keeping at least one (1) insert engaged on the part at all times is extremely important. Most sales engineers know this when applying standard cutters but many forget that "specials" are just "standard" good practice applied to special sizes or applications.

The Master Tool design engineers were able to design a cutter that always had an insert engaged on the part and had four (4) cutting edges. The customer purchased a cutter on a trial basis for their most popular vane size.

Once the cutter was built testing at the customer's facility began. Initially the results were promising but the tool life was not as expected. After an initial inspection of the inserts and learning that the customer was running flood coolant we realized that the inserts were thermal cracking. The coolant was turned off (even though the customer did not want to) and the results were astounding. Tool life tripled and part quality improved.

The end result was an order for cutters for all of their other pump sizes and a large insert order.