Newsletter

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SUMITOMO
CARBIDE - CBN - DIAMOND

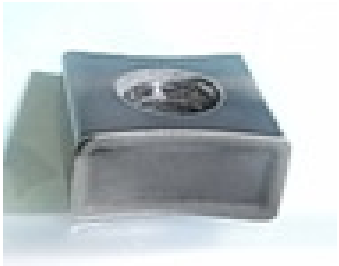


FIG. 1

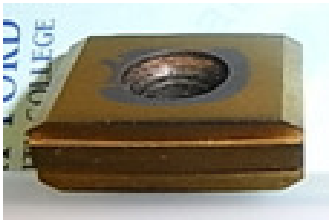
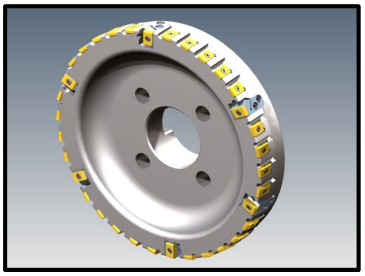
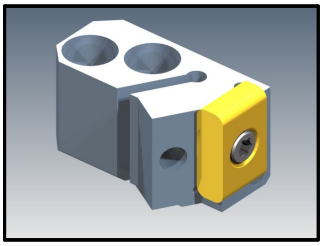


FIG. 2



SUMITOMO GOAL MILL



GOAL MILL WIPER CARTRIDGE

Bob Courter, the Sumitomo sales engineer in Detroit had an opportunity recently with one of his automotive customers for the new Sumitomo Goal Mill for finishing Cast Iron.

His customer was using a competitor's cutter to finish the deck face on a V8 cast iron cylinder block. The operation was on a dedicated transfer line and used both right and left hand 330mm diameter cutters.

This particular surface had a flatness tolerance and a surface finish requirement that was extremely tight. The competitor's cutter design utilized 26 inserts mounted on the periphery of the cutter **(See FIG. 1)** and two (2) wiper cartridges mounted on the face of the cutter with a larger wiper insert **(See FIG. 2)**.

The inserts were Silicon Nitride and the running speed was 620 MPM - too high for the standard carbide inserts used in our Goal Mill. Based on the running parameters it was questionable if we would be able to test the Goal Mill.

While using Silicon Nitride inserts in turning cast iron has long been an accepted practice using them for milling presents some difficulties. The tool life with Silicon Nitride, particularly in milling is very unpredictable. It can be quite high or quite low on every index of the insert. Since this application was on a dedicated transfer line predictable tool life was extremely important.

There was also the issue of part quality. Using the competitors cutter the part quality, particularly on surface finish varied quite a bit. This required constant diligence when inspecting the parts.

Bob Courter's biggest obstacle was to be able to meet the cycle time requirement since the Silicon Nitride cutter was running such a high surface speed. He was able to convience his customer to run the Goal Mill at 260 MPM (850 SFM) instead of the current speed of 620 MPM (2000 SFM). To offset the speed reduction he had them increase their feed rate from 1875 mm/min (73 ipm) to 2450 mm/min. (96.7 ipm).

The final result was an increase of tool life from 800 parts per index to 1600 parts per index. The 1600 parts per index was very predictable and also provided a considerable improvement in part quality.

Finally the competitor's cutter's failure mode was breakout on the part - resulting in a scrap part. With the Goal Mill the was no breakout on the part at all.

For more information call or e-mail Master Tool or your local distributor