For more information about Hard Milling Solutions, contact owner Corey Greenwald at 586-286-2300 or by email at hardmilling@sbcglobal.net
HIGH-PERFORMANCE HARD MILLING

Succeeding By Doing It The Hard Way.

Talk about doing things the hard way. Corey Greenwald is an engineer by training. In the past, he worked for a typical mold and die shop as a designer, a manufacturing engineer and in management.
HIGH-PERFORMANCE HARD MILLING

I wasn’t until six years ago, when his fragment cutters were used in hard milling, that he even ran a machine. He said it was one of the best things that happened to him in his career.

But, as time passed he was ready for a new challenge. He decided to focus on hard milling, a lot of potential in high-performance machining, and began to look for a new tool that would allow him to pursue this. As far as he could tell, there was a gap in the tooling for what he was looking for.

He said to me in five years, there’s a chance we’ll be doing different things but we’ll still be ahead of the curve.

Steenmore says that he is thrilled with the growth of the business and the future potential. “HMS is growing already at twice the rate my first company did, and with that company I had a lot of head-to-head competition. With HMS, there aren’t that many people doing it yet so we’re ahead of the curve.

The HMS way of doing hard milling is getting 10-12 RMS surface finish every single time. That’s incredible.

WHAT THE FUTURE HOLDS

The partners agree that they see the company as staying competitive by always being in a state of flux, far as technology and product offerings. “Our philosophy is that we want to change and grow every day,” says Greenwood.

“We want to keep getting better and not follow anyone else. We look at it as if our competition is always a leg up on us, and we strive to never be complacent and keep finding ways to get ahead and stay ahead, and the best way to do that is to stay at the forefront of the technology curve. If you call me in five years, there’s a chance we’ll be doing different things but we’ll still be ahead of the curve.”

Steenmore says that he is thrilled with the growth of the business and the future potential. “HMS is growing already at twice the rate my first company did, and with that company I had a lot of head-to-head competition. With HMS, there aren’t that many people doing it yet so we’re ahead of the curve.

There’s no one else out there teaching high-speed machining and hard milling the way we do. And with the tooling, there has been a huge advantage for us. This technology has made business a lot of fun again.”

Two important features of the HMS West coast production are: hard milling and high-speed machining, and both are critical to the company’s success.

“We can take an already hardened block and cut it to negative stock with a finish that doesn’t need any benching.”

Greenwood continues by saying they didn’t cut corners when they opened the shop. “Some shop owners go out and buy a machine and think they can skim and save on tooling and software, so they go cheap. We talked to SST and got their recommendations on what we should be looking for, what we need to do, and what we should be looking for, what we need to do, and what we should do.”

“We went with Wasm-Tool software and shrink-fit holders for our tooling and with the Makino V56—what we think are the best machines on the market for hard milling—that has made all the difference and permitted us to be profitable and successful in year one. And I’m sure there are many out there who think you can cut corners but you have to buy every piece of...
the puzzle to really service the hard milling market. I’m also pretty sure that we could beat the guys who think that way based on the rigidity of the machines and the fact that they really are built to hard mill."

**TIME IS ON THEIR SIDE** HMS saves its customers tons of time. "We are a small operation, just myself and another operator, but we pride ourselves on our turnaround time. In the past, shops would typically take a blade, rough it down to anywhere from 0.1000 to 0.0200 inches. Then they’d send it out to be heat-treated, bring it back, have to square up the block again and then finish the cuts.

"After that, they usually have to put some time in on the bench to get the finish they need. That’s a lot of setups and a lot of time. We’re able to eliminate most of these steps. Customers are blown away by the finish we get straight from the machine."

Greenwald says, for example, that one customer called on a Wednesday and brought the job in that day. Puttaway through the job, there was a change to this eight-cavity mold in hard stainless steel.

"We ended up cutting 44 inserts for the job. Now, these only measured four inches by four inches, but we cut 44 of them by the end of the day the following Wednesday—in one week—and got other work done also."

"We don’t even want a job to not get delivered and have to make that call to our customer that we can’t keep our promised delivery date. We want our word to be good and to provide a service like no other shop they work with anywhere, and we really believe that’s what we’re doing."

Another customer came to HMS with a perforation die with 5016 holes in hardened D2 steel and they needed to hold a 0.0003-inches tolerance in a 0.038-inches hole. "I looked at Mike, my employee, and said ‘I don’t know how we’re going to do this, but we will.’ And we did, so now that’s one more thing we can chalk up that we can do," Greenwald says with pride.

"Off the V56 doing hard milling we’re getting 10-12 RMS surface finish every single time. That’s incredible."

"We don’t ever want a job to not get delivered and have to make that call to our customer that we can’t keep our promised delivery date. We want our word to be good and to provide a service like no other shop they work with anywhere, and we really believe that’s what we’re doing."

In addition to saving customers time, HMS is saving its customers money. "There’s some wise EDM work that’s getting replaced by hard milling and a lot of its grinding that’s getting replaced, but people don’t know it.

The machines on the shop floor at HMS consist of two Makino V56 machining centers—no grinders, HMCs, or other equipment at all.
the puzzle to really service the hard milling market. I'm also pretty sure that we could
bear the guys who think that way based on
the rigidity of the machines and the fact
that they really are built to hard mill.

TIME IS ON THEIR SIDE HMS saves in
customers' tons of time. "We are a small
operation, just myself and another opera
tor, but we pride ourselves on our turn-
around time. In the past, shops would typi-
cally take a blade, rough it down to any-
where from 0.0010 to 0.0200 inches. Then
they'd send it out to be heat-treated, bring
it back, have to square up the block again
and then finish the cuts.

"After that, they usually have to put
some time in on the bands to get the finish
they need. That's a lot of setups and a lot of
time. We're able to eliminate most of these
steps. Customers are blown away by the
finish we get straight from the machine."

Greenwald says, for example, that one
customer called on a Wednesday and
brought the job in that day. Partway
through the job, there was a change to this
eight-cavity mold in hard stainless steel.

"We ended up cutting 44 inserts for
the job. Now, those only measured four
inches by four inches, but we cut 44
of them by the end of the day the follow-
ing Wednesday—in one week—and
get other work done also.

"We don't ever want a job to not get
delivered and have to make that call to our
customer that we can't keep our promised
delivery date. We want our word to be
good and to provide a service like no other
shop they work with anywhere, and we
carefully believe that's what we're doing."

Another customer came to HMS with a
perforation die with 56 holes in hardened
D2 steel and they needed to hold a
0.00012-inch tolerance in a 0.1000-inch
hole. "I looked at Mike, my employee, and
said 'I don't know how we're going to do
this, but we are.' And we did, so now that's
one more thing we can chalk up that we
can do," Greenwald says with pride.

"Off the V56 doing hard milling we're
going 10-12 RMS surface finish every
single time. That's incredible."

A PENNY SAVED...In addition to saving
customers time, HMS is saving its cus-
tomers money. "There's some wise EDM
work that's getting replaced by hard
milling and a lot of their grinding that's get-
ting replaced, but people don't know it

The machines on the shop floor at HMS consist of two Makino V56 machining centers—no grinders, HMCs, or other equipment at all.
HIGH-PERFORMANCE HARD MILLING

I didn't wait until six years ago, when my first customer came to us for hard milling, that he even ran a machine. He says it was one of the best things to happen to him in his career.

But, as time passed he was ready for a new EDM company. Greenwald had a lot of potential in high-performance machining, and began to look for a new role that would allow him to pursue this. As fate would have it, Craig Sterneore, an engineer who had hard milling experience and discussed it with Corey and HMS was born as a completely separate company.

THE DAWN OF A NEW AGE Hard Milling Solutions specializes in doing high-performance machining of hardened steel, as the name would imply. "A lot of people say they're hard milling, but we really are hard milling every single day," says Greenwald. "Most of the metal we cut starts in the high 50's Rockwell C-scale and goes well into the 60s. We're doing mostly D2 and so of backing. We don't like backing. We get proven if we have backing and try to get every piece out of here every day whenever possible."

Both Greenwald and Sterneore say that Makino technology is key to their success. But they also agree that without the proper tooling, tool holders and software, they wouldn't be as successful as they are today. And they credit SST for helping them realize this new role before they were able to.

"SST helped me learn how to hard mill properly," Greenwald says. "I had an idea of what I needed to do, and I'd been hard milling for a while. I took all of the Makino and SST Technology Transfer courses and learned a lot. I don't know of any other companies that you could both buy a machine and really learn the intricacies of high-speed machining."

Greenwald continues by saying they didn't cut corners when they opened the shop. "Some shop owners will go out and buy a machine and think they can skip and save on tooling and software, so they go cheap. We talk to SST and get their recommendations on what we should put in the shop. We were able to use a lot of the equipment, software, and programs that we were able to use in our own shop."

"We went with Cam-Tool software and shrink-fit holders for our tooling and with the Makino V56—what we think are the best machines on the market for hard milling—and that has made all the difference and permitted us to be profitable and successful in year one. And I'm sure there are many out there who think you can cut corners but you have to buy every piece of

"We can take an already hardened block and cut it to negative stock with a finish that doesn't need any benching."

"I have a lot of head-to-head competition. With HMS, there aren't that many people doing it yet so we're ahead of the curve."

WHAT THE FUTURE HOLDS The partners agree that they see the company as staying competitive by always being in a state of flux as far as technology and product offerings. "Our philosophy is that we want to change and grow every day," says Greenwald.

"We want to keep getting better and not follow anyone else. We look at it as if our competition is always a leg up on us, and we strive to never be complacent and keep finding ways to get ahead and stay ahead, and the best way to do that is to stay at the front of the technology curve. If you call me in five years, there's a chance we'll be doing different things but we'll still be ahead of the curve."

Sterneore says that he is thrilled with the growth of the business and the future potential. "HMS is growing already at twice the rate my first company did, and with that company I had a lot of head-to-head competition. With HMS, there aren't that many people doing it yet so we're ahead of the curve."

"There's no one else out there making high-speed machining and hard milling the way SST and Makino teach it, and that has proven to be a huge advantage for us. This technology has made business a lot of fun again."

"And we did studies back and forth between our wire machines and a Makino, and V56, and we found over and over that they could beat our times so we realized that this was a viable process. I began to look for someone who had hard milling experience and discussed it with Corey and HMS was born as a completely separate company."

"The changeover to the new EDM company has been very exciting for us, and we're looking forward to seeing how it all plays out."

"We've been able to do some amazing things with our current setup, and we're excited to see what the future holds for us."

"We're not going to rest on our laurels, we're always looking for ways to improve."

"The future looks bright for us, and we're excited to see what the next year holds for us."

"We look forward to continuing to grow and excel in the hard milling industry."
Succeeding By Doing It The Hard Way.
Talk about doing things the hard way. Corey Greenwald is an engineer by training. In the past, he worked for a typical mold and die shop as a designer, a manufacturing engineer and in management.
For more information about Hard Milling Solutions, contact owner Corey Greenwald at (586) 336-9737 or by email at corey@hardmillingsolutions.com