

# The NOMAD 3 – Your New Desktop CNC

## Chapter 1: What's Right About the Nomad

Kevin Barnett: The makers garage crew are becoming regulars here at Carbide 3D HQ in Torrance California. Today we give you all the details on the Nomad 3.

[Music] Overlay graphics saying "The Makers Garage, presented by Carbide 3D. Nomad 3 Desktop CNC Mill."

Kevin: This is the third iteration of the category Creator, the benchmark machine for desktop milling. Modified and refined, 100% U.S. made and unparalleled in company support. Dedication to an ethos, a concept, high quality machines for a fair price, a dedication in doing things right.

If we want specifics, we have a man on speed dial, we know who to talk to...especially if you watch Carbide 3D you know him, you love him, a social media star for the company here and a guy who has a reverence for the imperial measurement category. Come on in Winston Moy

Winston Moy: Hey Kevin. [Winston joins and sits down at the table.]

Kevin: Thanks for joining us once again here on the Maker's garage.

Winston [smiling]: Oh I'm always happy to be here and uh talking CNC.

Kevin: Yeah we're going to talk about this Nomad 3 now...when you went to redo it, what was right about this machine?

Winston: What was right about this particular machine? [points to the machine in between Kevin and himself]

Kevin: Well, okay what was right about the Nomad?

Winston: So the nomad's always been great because it's a self-contained unit that you can bring anywhere, it's capable, it's portable, but it's also built like a tank. So people could buy it, they could put it in their shop, they could...maybe not in their living room, but basement, garage... It was a trusty machine, it was a sidekick you could keep around and entrust with making just about anything.

## Chapter 2: What are the updates to the new Nomad?

Kevin: Okay so there's a lot right with the general platform. You dive into the process of what can we add to this machine, its capability...Where did you start? What were the wants?

Winston: So biggest thing was spindle. So the old Nomad 883 Pro had a 10,000 RPM spindle. When you're doing precise work with PCB Mills, with engravers, RPM is really king, because those cutters take little bites out of the material and the faster you can turn that cutter, the more bites you can take, the faster you can cut. That was really the limiting factor on the old Nomad, so we have more than doubled

the RPM of the spindle, we've given it more power, so basically for the small, precise jobs that you're trying to do, this is a much more productive machine.

Kevin: For one of the other precise things you want to do you have lights in here. Now that seems to be a huge upgrade from the machine, you don't have to worry about the light in your room so much.

Winston: That was a quality-of-life thing, because a lot of times if you're in your garage, if you're in your shop and you're leaning over this machine you're actually casting a pretty big shadow on your workpiece, and when you're trying to look at small parts it can be a bit of an eye strain. The lights in here make it so that you can work freely. If you're trying to shoot video like I have been doing a lot, it just makes it a much more pleasant machine to use.

Kevin: It's a YouTube star, the Nomad 3, or a YouTube star-in-waiting. Where did the refinement ideas come from?

Winston: I would say as someone who uses the machine all the time, it just comes from places where we see we can improve. If I'm cutting something and it's too slow and I wish I had more power I just put that on my wish list and over time we've built up enough of these that we decided hey, it's time to make a bigger change than just an incremental hey let's switch from mechanical switches to proximity switches. We got to a point where we were like hey, we need to do a complete overhaul for this machine. We have so many changes that we want to do let's make the generational change from the 883 Pro to The Nomad 3.

## Chapter 3: Software Packages

Kevin: In addition to the machine when you purchase it you get a really nice software package that comes with it a whole bunch. Now a Alibre is brand new. People are familiar with Carbide Create and Carbide Motion.

Winston: So this is a machine that you can do a lot with and so we wanted to give them a software package that could support what people want to make with this. So not only do you have 2D CAD and CAM with Carbide Create, you can also model things in 3D with Alibre and then bring that into MeshCAM to machine.

Kevin: MeshCAM is a far superior option in terms of other machines that are in a similar price point.

Winston: Yeah it's a very good value product and it makes it really easy to take a 3D model STL and then bring that into the program, generate tool pads for it even two-sided machining if you want to use something like a flip jig and bring your 3D parts to life.

## Chapter 4: Customers for this machine

Kevin: Who's buying this machine?

Winston: So, a variety of people. People who generally buy this machine are looking for something that runs out of the box. They may not want to tinker with a machine they have to assemble themselves, but they want something that's reliable, ready to go and this could be anything from educators to jewelry

people, people who are doing small craft things. You do have some woodworkers who do smaller scale things that would benefit from the precision of this machine...small metal workers, basically anyone who's making something. I mean, you could target this machine to anyone who sells something on Etsy, it's the perfect companion to make small parts. You also have electronics people. PCB Milling is also an option on this machine, so our users cover a really wide gamut.

Kevin: Yeah carbide copper is something that doesn't necessarily get mentioned all the time but another part of the software package that's always available.

Winston: Yeah it doesn't get mentioned a lot but it is a really easy way to bring in electronics files for PCBs to machine them, to drill through holes, to cut out traces. It's out there if people want to use it.

Kevin: All right so if you're doing prototypes, if you're an engineer and you already know what you're doing that's great, this machine is certainly ready for that, but what if I'm buying it for the first time? There's a pretty interesting policy you guys have it is "Mistakes are on us for 30 days". What does it entail? It's unlike anything any other company's offering.

Winston: So we've been building these machines for long enough that we understand what people do wrong, what's most likely to break. So we decided to double down on the fact that we will support these machines, we will make sure you get up and running, so if you crash the machine, if something breaks, we will replace it. If you break a cutter, one of our cutters, and you just you didn't know what speeds and feeds to use in aluminum, we'll send you a replacement. We're going to stand by you until you're up and running and able to machine what you want to machine. We have a support staff that's brilliant and capable and patient and they will walk you through whatever you need until you can operate this machine safely, reliably on your own.

## Chapter 5: Traveling with the Nomad

Kevin: Winston mentioned earlier that you could take this machine anywhere you want to take it. You took it on a cross-country trip and did Machining all the way from the east coast to the west coast.

Winston [laughs]: It was a fun journey. You can fit this pretty easily in the back of a trunk. I would say the only thing you have to look out for are the chips. You don't want to empty out aluminum chips as you move

Kevin: They don't come out of carpet very well.

Winston: They don't. It's really tough to vacuum. But a machine like this you can pick it up, you can place it anywhere it's built like a tank so it doesn't flex, it doesn't go out of tram or out of square so it's really easy to just take it out of a car take it into someone else's shop, start Machining because it's a self-contained unit. So that's one of my favorite things about the machine is that you can take it just about anywhere.

Kevin: Not only is the unit self-contained but also the software is self-contained so literally when you take this where you want to go all you need is one plug. The question is where will you take it?

[voice-over with various images of the Nomad 3 in different vacation-type settings] Whether in the workshop, studio, home office, remote office, or on the move, Nomad 3 can easily be taken along. Requiring just a power connection 110 to 240 and a direct connection to your computer you can make parts anywhere. You don't need an online connection, you're not tethered to a third party, this is not cloud software. Prototyping, educating, making, learning, experimenting, wherever and whenever you want. That's the Nomad 3.

[voice-over with video of the Nomad 3 being created] Every Nomad 3 is made in California from billet to finished machine, this is a 100% U.S.A. made product, manufactured, assembled, calibrated and shipped to you from Carbide 3D's Torrance office. Support for all carbide 3D machines is U.S.-based. The company is here as a partner no matter your level of experience. Everything about this machine and the ongoing efforts to provide you with a powerful platform are American made. Additionally, the 'Mistakes are on us' policy is unprecedented in the industry and only available with Carbide 3D.

[Back to Winston and Kevin speaking across a table with the Nomad 3 in between.]

## Chapter 6: The Making of the Machine

Kevin: You're supervising the making of this machine, the prototyping of this machine. Has that process accelerated for you guys, do you do more now?

Winston: We definitely do. So one of the things that we wanted to do when we made the Nomad 3 was maintain a greater level of control over the quality of the machine, the parts, and by bringing it in-house we're also able to iterate a lot faster. So if we see a small change, a small tweak in the parts we can make it ourselves, test it in the machine and that's how we develop this machine. We started back in March, April and we just we started machining parts, bolting them onto the machines. We had an old Nomad 883 Pro as a test bench and we just slowly added parts as we approved them. We started building the finished Nomad 3 chassis that you see here and it's a good way to ensure that you maintain the quality of the product that you want and to add in all the features that you want to do it all in-house.

Kevin: I don't know if this will be unfortunate when Skynet becomes self-aware and we all suffer the destruction that we know of from Terminator but you guys are not kidding about producing parts on these machines. You guys do that right now.

Winston: We do. So there are small parts that might not be cost effective to injection mold, so we'll just machine them ourselves. There are small bits in this machine that we will cut out because, quite frankly, to do a small part on a big industrial CNC doesn't actually make sense and this machine flies through plastic so there are actually some parts in here like we can point out later – the bottom bracket that supports the lead screw in the z-axis, that's machined on The Nomad, in the Bit Zero, our corner finding tool, the little diffuser insert is also something that's made on The Nomad. So we really build tools to make tools and we're not afraid to use what we produce on a regular basis and really put it to the test and that experience helps make this machine even better because we're using it ourselves, we're getting experience, and we know what we want to improve and how to make it better.

## Chapter 7: More About the Machine

Kevin: One other big note about the software that has to be said is this is not cloud-based, you don't need an internet connection and you don't need a subscription. Why that decision? Is that an ethos in the company?

Winston: Making software that's not only accessible but easy to use and isn't cumbersome with licensing restrictions is definitely something that we want to do. So with our software we make sure that once you download it, you can keep using it and especially if you're working in a basement, in a garage, in a shed that's separated from your house, you might have a weak Wi-Fi signal. We don't want that to hold you back, which is why all of our software is not cloud-based. You download it to your computer you can run it anywhere.

Kevin: Important note with Alibre; that is a Windows-based software correct?

Winston: That is. A lot of people use Windows it's the more popular operating system but unfortunately, it is Windows only.

Kevin: But MeshCAM, Carbide Create and Carbide Motion are all MAC and PC.

Winston: The software that we create for controlling the machine and generating 2D tool pads, Carbide Create and Carbide Motion are for MAC and Windows

Kevin: Along with the machine when you purchase it you have a whole bunch of options too there's an ecosystem of parts that have been developed over time. The flip jig is one that comes to mind if you want to do some other machining. The vice, the low-profile vice...what else can I put into the machine that is already in that ecosystem?

Winston: I mean basically anything you want. We also have a threaded table which takes M6 Hardware. We have clamps...

Kevin: The tiger claws!

Winston: ...the tiger claws, and also the gator tooth um so you have a lot of options for work holding material. Another one of our favorites is the super hold kit which is superglue combined with painters tape and that is a really easy way to basically secure large sheets of material that you need fully supported. There's almost nothing you can't work hold on this machine.

Kevin: What is the workspace that's available?

Winston: So based on the legacy of the machine The Nomad 883 Pro, it's 8 inches by 8 inches by 3 inches. That part has not changed. And we also have the tool length probe which is located off of our table so it doesn't cut into your usable workspace.

Kevin: One of the refinements of this machine I noticed is that there are no cables visible and now you have increased visibility of your parts as well. You guys have really taken this to a space where you can see what you're doing.

Winston: That's one of those changes that came about from me using the machine and wanting to improve. Visibility of the parts from the side angles is kind of important for me as a content creator but also when you're trying to line up the cutter with the front or back edge of a part, it's really hard to look in if you don't have a line of sight from the side so the windows make it a lot easier to see what you're doing, to observe it from a different angle, to shoot video, and also if you want to get some illumination from side you can do that too.

Kevin: Yeah I mean it's a beautiful package just when you open it up and turn it on it's really nice and you have to have it closed in order to run it right? Safety.

Winston: That is a safety feature we have especially for people in the education space uh you have kids using these machines. When the machine is in operation if you open the door the spindle will pause so that nothing flies out of the machine.

## Chapter 8: Getting Started

Kevin: We've talked about people who are experienced with these machines or something like it are in that space know what they're doing. Folks that don't when they order a machine what do they need to do just to get started?

Winston: So this machine comes with an accessory pack with basically everything you need to get started so if you look on the side here there are three connectors one of them is for our Bit Zero touch probe, one of them is USB to connect to the computer, and one of them is power. Those are the only things you need to plug in to get this machine ready to go. So it's very easy to just pull the machine out of the box, set it on a table, plug everything in, and you're ready to machine.

Kevin: Yeah it's a one-plug operation you just need power and your laptop as long as you have some battery power you are ready.

Winston: Yeah it's a really easy way to get a machine and make it approachable. So you can take this machine, pull it out of the box, set it down and you're ready to go within a matter of minutes. We have a variety of projects that you can download look at, take inspiration from, machine them yourself and get started.

Kevin: And not only all the accessories we talked about but also the bits. You guys have a whole wide variety of endmills that are available through carbide.

Winston: Yeah so we have, over time, taken a look at the kinds of cutters that people need to get their projects done and so we've started stocking them to make it easy for them to buy the machine and also buy the tooling they need to make their projects.

Kevin: You have a recommendation for when people purchase the machine? What comes with it in terms of endmills and what do they really use immediately what are the go-to's?

Winston: So we provide an 8 inch endmill for you to get started which is a good general purpose cutter but depending on what you want to machine if you want to machine really precise things you might

want a smaller cutter, a 1/16 inch or 1/32 inch or a PCB engraver. It really depends on what you want to make, how big it is, what material it's made out of, but we've got you covered for a very large variety of projects.

## Chapter 9: Conclusion

Kevin: Can we run this thing? Can we put a little project in and make something right now.

Winston: Let's make some chips!

Kevin: As always here on Maker's garage.

[Music with close-up footage of the CNC machine working on a chip.]

Kevin: All right Winston, we've done it again.

Winston: We have.

Kevin: We've made a mess, we've had some fun.

Winston: That's how you know it's a good day.

Kevin: Let's get this thing out of here. Let's get our aluminum block out. Great thing for apartment dwellers, if you want to not make so much noise for your neighbors, this is the machine for you. You have a small space to work with.

Winston [takes out the chip and hands to Kevin.] A chunky block of aluminum.

Kevin: It is still little warm.

Winston: It's nice.

Kevin: Yeah still a little warm.

Winston: Perfect for the wintertime.

Kevin [reading the chip]: There's a note here...huge success. Oh well that's good for today. All right, thanks for being our Machining spirit guide.

Winston: Thanks for coming to check out what the Nomad's capable of.

Kevin: All right we had a lot of fun here on the Maker Garage today again here at Carbide 3D. Remember with the Nomad 3, all the improvements we discussed; you own the software, you get the opportunity to choose where and when to run it, so many pauses with the company and mistakes are on them, the 'Mistakes are on us' policy for 30 days don't forget that, incredible value. It's been a lot of fun to be inside HQ once again I think I'm going to actually ask for a desk, let me talk to Winston. [starts to walk off screen] Winston, I'm going to need a desk and yes definitely I need parking too, personalized parking, I don't want to have to go anywhere to get in my car...