

{discover}

Silence is Golden

**Zero Electric Motorcycles:
Street machines that are superfast, sleek, and silent**

By Stacey Vreeken



Imagine cruising along Sky-line Boulevard, a force pushing you forward at the grip of the handle. You can smell the redwoods, hear the birds, and feel the tires grabbing the road beneath you as you lean into a curve. That's how Abe Askenazi described riding the Zero electric motorcycle, which offers instant torque and a range up to 197 miles on a single charge.

"It's really magical," he said. "You merge much more with your surroundings. You're more in tune with what's going on. You can feel the road much more."

(Above) A Zero motorcycle proves its versatility making its way through an empty field just north of Santa Cruz.

Photo: Zero Motorcycles

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(Above) A female rider cruises a Zero motorcycle past the lighthouse on West Cliff Drive in Santa Cruz.

Askenazi is Zero Motorcycles' chief technology officer, product manager, and a member of its board of directors. Zero is celebrating 10 years of making electric powertrain high performance motorcycles, manufacturing in Scotts Valley with roots in Santa Cruz. The bikes are clutchless and shiftless, with direct connection to the rear wheel.

"I could tell this was the future," Askenazi said about joining the company in 2010. The Zero tech guy always has been into both motorcycles and electrical engineering, convincing his professor at UC Berkeley to sponsor his thesis on the dynamics of motorcycles. That curiosity and expertise continues to give Askenazi the insight to match performance needs to the new technology of electric vehicles.

"The vast majority of us at Zero are motorcyclists, but it is technology that has revealed to us a better way of motorcycling" Askenazi said. "That's why we do it. For me and rest of the team at Zero, the reason that we're doing this is a passion, not only for motorcycles but also for electric vehicles."

Askenazi explained why electric motorcycles, and the way they ride, are so revolutionary.

"People don't understand how special, how originally special, that experience is in motorcycles," he said. "Unlike cars, motorcycles haven't really changed all that much." All of the things we've come to love about the internal combustion engines also get in the way of interacting with the road and environment around you, he said.

Photo: © Zero Motorcycles

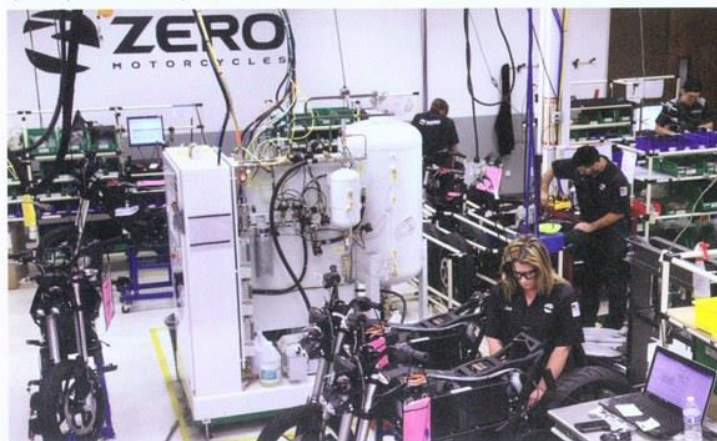
"Ninety-plus percent of them, you have to shift, you got a clutch, you got the exposed engine so you have the noise of the engine, the vibration," he said. "You have the fumes from the gas tank – it's right underneath you. And the exhaust system is very near you. You have the heat of the exhaust, which again is exposed, very near your legs and your passenger's legs – all these things about motorcycles really haven't changed that much in a hundred years. We've come to expect them. In many ways, we've come to love them."

There are the sounds of a twin, a triple, a sports cylinder. A Harley engine sounds differ-

ent than an Italian or Japanese-made engine. It's all part of the experience. Now, Askenazi said, electric motorcycles have shown us what it's like to ride a motorcycle without clutching and shifting, without the noise, heat, vibration, and fumes.

"It's almost like a veil has been removed," he said. "Now you are experiencing the pure dynamics of being on a motorcycle. It's really much more like flying than it is riding a traditional motorcycle. That's why so many people refer to it as the magic carpet ride."

Once people take the electric motorcycle for a test ride, it's tough to go back to



(Above) Being the global leader in electric motorcycles, the Zero Motorcycles factory in Scotts Valley always thrives with activity.



(Above) Although a favorite on the street – on the track the Zero reaches speeds up to 95 miles per hour.

gasoline power, he said: "It seems so archaic, so unnecessary."

That was Askenazi's personal experience as well. He had worked 15 years for the Buell Motorcycle Company, which was acquired by Harley-Davidson. In 2008, after his first magic carpet ride on an electric motorcycle, he left his senior leadership job at Harley to join Zero.

"I was so taken by the experience, I almost had no choice," he said. That meant moving his family from Wisconsin, working at a startup, and inventing at the same time. It was a "wild ride" and "a ton of work," but manufacturing in the same place as developing is priceless, he said.

"Zero wouldn't exist without Santa Cruz," Askenazi said. "The culture of Santa Cruz is very much the culture of Zero – an active lifestyle, caring not only for each other but also the environment. If we were in Los Angeles, we would be a very different company. Zero wouldn't be Zero without Scotts Valley and Santa Cruz."

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Askenazi, who along with his wife, was born in Mexico City, now alternates his schedule on a two-to-one basis: two weeks in Mexico and one week Scotts Valley. His family stays in Mexico.

"The week that I'm (in Scotts Valley), I get a lot of face time," he said. "I get to ride the test bikes, interact with executive team and operations. It's a pretty intense week."

The switch to electric motorcycles is a matter of thinking outside the box. Being able

to envision a better way of doing things and a willingness to try something different. YouTube is full of Zero test drive videos by motorcycle industry journalists enthusiastically surprised at the speed, torque, and quietness of the ride. Easy to operate, some of the Zero's appeal comes from low maintenance (there's no service except for the brakes), ability to customize performance, and its get-on-and-go setup. You can plug it into any electrical outlet.

"You're not working on it," Askenazi said. "You're not adjusting valves. You're not tuning the fuel injection, changing the air filter, fuel filter, adjusting chains. All that stuff is not there. You're just riding the thing. So you spend a lot more time riding and lot less time doing maintenance and doing other stuff that doesn't give you the joy of riding."

So who rides a Zero motorcycle? The majority already bikes. Local police and the military are good customers. Police forces in Santa Cruz, Capitola, UCSC, Watsonville, and Monterey each have a Zero – Scotts Valley has three. Other law enforcement units, both

(Below) A group of Zeros make their way along one of Santa Cruz's scenic back roads.



U.S. and international, also use the bikes. Zero even developed an electric motorcycle for U.S. Special Forces.

"What's attractive for them is its stealthiness," said Askenazi. "It's also great for community relations, so when they're patrolling cities, biking paths, and foot paths, they are not disturbing people."

Monterey police use it's Zero motorcycle to patrol the beach path. San Jose State University uses Zeros on campus to patrol inside buildings and other confined spaces. There's no noise, fumes, or heat.

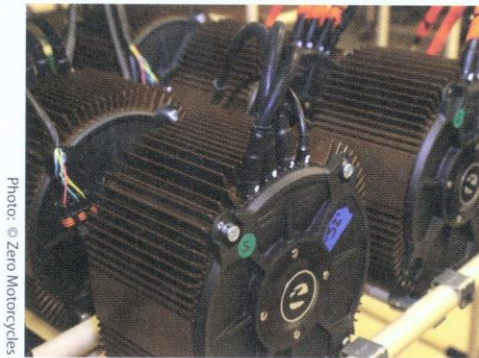


Photo: © Zero Motorcycles

(Above) Zero's battery-powered electric motor is capable of as much as 67 hp and 106 ft-lbs of torque.

Zero's other fans include both experienced riders looking to complement their collection and beginners who find it easier to ride and maintain.

"Whether it's because they're intrigued with the technology, simplicity of ownership, the magic carpet ride, the environmental part of it, or the social consciousness of it, they're able to justify it to themselves, their spouse, or significant other more easily," Askenazi said. "They're doing something good for the world."

All while silently zipping around on a motorcycle. 🚲

How It Works

All Zero motorcycles are powered by a direct drive powertrain using lithium-ion cell technology (battery pack) that channels power from the motor to the rear wheel via a silent constant tension belt.

There is no clutch, no gears, and torque is instant from 0 rpm. The system produces so little heat, it allows for an air-cooled motor and power pack. The brushless motor requires no routine maintenance.

You can add an additional Power Tank storage to extend range and a phone app that acts as a secondary dashboard and allows you to customize performance information.