

MATT JANCER GEAR 10.04.2020 08:00 AM

# What Are Ebike 'Classes' and What Do They Mean?

According to your state's laws, ebikes can be designated as Class 1, 2, or 3. That determines what you can ride and where.

**LAWS TAKE A** while to catch up to new technologies. There was a brief period when electric bikes sat in legal limbo, a gray area of uncertainty about whether they should be classified as bicycles or a type of motor vehicle. Were they legal in bike lanes? What about in parks? Nobody had a definitive answer, and when lawmakers attempted to write one, states contradicted each other.

As of 2020, the ebike industry and more than half of US states have coalesced around a common (though broad) system of three classes: Class 1, Class 2, and Class 3. Yet even today, interpretations of these classes differ slightly across retailers and manufacturers' websites. Your best approach? Check your local laws for ebike compliance if you're concerned. You're unlikely to get pulled over for going 22 miles per hour in a bike lane or for using an ebike in the wrong lane (especially if it looks like a regular bike). But it's better to be sure than to have no defense if you do get pulled over.

Below, we break down what each class of electric bike means, the different types of electric vehicles, and more, so you know what you're getting into.

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*Updated October 7: We elaborated on how bikes capable of going more than the 28 mile-per-hour top speed use software restrictions to meet certain classes.*

## Class 1



PHOTOGRAPH: PROPELLA

Class 1 ebikes are limited to a top speed of 20 miles per hour, and the electric motor works only when the rider is pedaling. A bike that has an electric motor that assists only during pedaling is called a pedelec.

Some, like the [VanMoof S3/X3](#), have a throttle on the handlebars that offers an extra power boost, but on Class 1 ebikes the throttle works only if you're also pedaling. You don't have to be pedaling very hard, though. You can throw it into a low gear and just free-spin the pedals forward slowly and that's enough to let the throttle work.

Class 1 ebikes are allowed on bike paths and bike lanes that are shared with traditional, nonassisted bikes—what we've started to call analog bikes.

#### **Examples of Class 1 Ebikes:**

- [Propella](#)
- [Tern GSD S10](#)
- [Cannondale Quick Neo SL](#)

## **Class 2**

PHOTOGRAPH: WING

Class 2 ebikes are also limited to a top speed of 20 miles per hour, but they have throttles that work when you're not pedaling. That doesn't mean the motor won't assist you if you decide to pedal. Most Class 2 ebikes offer electrically assisted pedaling alongside throttles. As with Class 1 ebikes, you can generally ride them the same places as an analog bike.

#### **Examples of Class 2 Ebikes:**

- [Wing Freedom 2 and X \(with optional throttle\)](#)
- [Super73 S1](#)
- [Aventon Pace 350](#)

## **Class 3**

PHOTOGRAPH: SPECIALIZED

Here's where it gets confusing. Class 3 ebikes can go up to 28 miles per hour and must have a speedometer, but may or may not have a throttle.

It depends on the state writing the rules. California, for example, doesn't allow Class 3 ebikes to have throttles at all. In other states, throttles are allowed as long as they only work up to 20 miles per hour, while pedal-assisted electric power continues up to 28 miles per hour. Most states let you take a Class 3 ebike into road lanes or a bike-only lane in the shoulder of the road (so-called curb-to-curb). But you can't take them on bike paths that exist outside of the road or on multiuse trails shared with pedestrians, like in a park.

A few ebikes try to work around these restrictions by adding a mode that limits the speed to 20 miles per hour so that you can ride them on multiuse trails and paths. Toggle the setting or remove a special physical key and you can unlock the bike's full potential.

#### **Examples of Class 3 Ebikes:**

- [Specialized Turbo Vado SL Equipped](#)
- [Aventon Pace 500](#)
- [Trek Domane+ HP](#)

## **How About Unlocking Higher Top Speeds?**

There's also an unregulated mania where ebike manufacturers are doing whatever they want. Did you know there are ebikes that go [60 miles per hour](#)? At that point, they're basically electric motorcycles with superfluous pedals attached. A

growing number of very fast ebikes are capable of blowing past 28 miles per hour and yet still have found a way to technically, legally fit into the classification system with a switchable setting and a little rider cooperation.

It's the honor system. A lot of ebikes, like the Wing Freedom 2 and X, will let you remove the top-speed restriction in exchange for a promise that you won't ride them in bike lanes or they'll give you a notice that you should only unlock them if you're on private property. It's easy and usually done through the bike's display screen or if the bike has one, a companion app. Most only go a few miles per hour over their class' limit, but others, such as the [Vintage Electric Roadster](#) and the [HPC Black Lightning](#), can go much faster than 28 miles per hour. It's how some manufacturers can sell a 40 mile-per-hour ebike with a motor many times more powerful than normal and still be compliant. You toggle a setting and suddenly it's a Class 2 or 3 ebike, at least legally.

Don't use ebikes unlocked on a bike path or around parks with pedestrians if they aren't set up to comply with local regulations. You don't want to mow anyone down, and for your own sake, you shouldn't be going so fast that you don't have time to react when an inevitable person, pigeon, or Porsche wanders into your path.

## Ebike or Electric Motorcycle? Scooter Or E-Scooter?

The terminology of these electric vehicles has gotten out of hand because everything these days has wheels. Laws vary by state and country to country, but ebikes still fall into a murkier legal gray area than most vehicles. First off, ebikes are not a kind of scooter.

Ideally, we'd refer to kick scooters, like the [Ninebot ES2](#), as scooters and call things like [Vespas](#) "mopeds". A moped is already a common term for them anyway. You're unlikely to mix up an ebike and an electric kick scooter, which has much smaller wheels and requires you to stand instead of sit.

Like with electric motorcycles, e-mopeds don't have pedals. Most states classify these as scooters rather than motorcycles if it has a maximum speed of 30 miles per hour and, if gas-powered, a maximum engine displacement of 50 cubic centimeters. You generally don't need a motorcycle license to drive a moped if it tops out at 30 miles per hour, but you do need a regular driver's license.

The difference between an ebike and an electric motorcycle largely centers on the fact that an ebike has pedals and a motorcycle doesn't. Even fast, nonclassed ebikes are technically considered bicycles in many US states because they have pedals. Legislators haven't given much thought to 40 mile-per-hour ebikes, because they're uncommon. For now, they're in legal limbo in a lot of places.

## State Variations and Federal Land

Effective August 2, the state of New York made it legal to ride an ebike on roads that post a speed limit of 30 miles per hour. While it doesn't directly regulate an ebike's top speed, it effectively means you're restricted to 30 mph, unless you like speeding tickets. California, aside from having a ban on throttles for Class 3 ebikes, also says an ebike's electric motor must be less than 750 watts. Washington state says it must be 750 watts or less, which effectively rules out those ultrafast ebikes. Beyond that, they're considered electric motorcycles. A few manufacturers make California-compliant versions of their higher-end ebikes.

[Eight states](#) flat-out classify ebikes as mopeds or motor vehicles and not bicycles at all. These are just a few examples of how widely the laws are written and interpreted legally, all the more reason for you to look up local state and city laws before you buy an ebike (especially a high-powered or fast one).

The [Bureau of Land Management](#), [National Park Service](#), and [National Forest Service](#) all control different swaths of federal land and have their own rules for which ebikes can be ridden where. Read up before you take a trip with your ebike.

Now that you know the differences, check out WIRED's guide to the [Best Electric Bikes](#) to find our favorites. Happy riding!

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Ideally, we'd refer to kick-scooters as kick-scooters and motor-scooters as motor-scooters when talking about them in the same context. And, if we're getting super technical, an e-bike is actually an e-moped (as being a moped literally means it has a motor and pedals). It's kinda fun, actually, if you look up the original mopeds since they're just like e-bikes (but with gas motors).

As far as I can tell, the regional usage of "moped" is just the usual American synecdoche that we tend to apply to things we see as foreign (in this case, anything small and European-ish is a "moped", even though that's only one type of thing). Since a Vespa is European-ish they tend to get called a "moped" (regardless of displacement), while other styles of scooters tend not to. If you own and ride motor-scooters, though, it can be super annoying how the terminology is muddled.

And trust me, I understand why it's confusing. When I crashed into the back of a stopped bus while riding a Ninebot ES4 (at full speed), people kept thinking I'd crashed my Vespa. I literally made a guide on my Instagram since a lot of my friends didn't know what an e-scooter or kick-scooter was.

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