

Dirk Zedler

It's a new golden age for cycling — so let's make sure our bikes are up to it

Cycling is more popular than it's ever been in the Automobile Age, especially in many big European cities. And that creates new challenges for the bicycle industry.

These are good challenges to have. More bicycle traffic from commuters and other everyday riders means less congestion, nicer and cleaner cities, and happier, healthier people — all undeniable benefits.

Bikeshare systems, which have become a common sight in many cities, are encouraging this shift. Once users realize how fast and easy it is to zip through a city on a rental bike, they're often willing to invest in a high-value bike or e-bike of their own.

Pedelec owners are especially enthusiastic cyclists. According to a recent Swiss survey, someone who owns a conventional city or trekking bike rides an average of about 675km (420 miles) a year. But pedelec owners ride nearly four times as much — averaging 2,600km a year.

Pedelec owners are also more attached to their bikes. In the Swiss survey, about 19 percent of cyclists said a bicycle is their primary or secondary means of urban transportation. But for pedelec owners, the number jumped to 80 percent.

Not good enough. The one thing these high-mileage riders want is reliability without downtime. But that's where many bikes fall short, whether they are made for bikeshare systems or for private use.

Unfortunately, the current international safety standards for bicycles, ISO 4210 and EN 15194, are of little help.

The standards impose absolute minimum requirements that every bicycle is required to meet, whether it's a 149-euro supermarket special or a 4,900-euro pedelec.

One problem is that the ISO standards are designed around an implicit total weight — for rider, bicycle, and cargo — of 100kg (220 pounds). This is not enough, as simple addition demonstrates:

The average man in Germany, Austria or Switzerland weighs between 85 and 89kg. A typical city or trekking bike weighs between 16 and 20kg. This means that more than half of the cycling men in these countries ride bicycles that have been tested only to the minimum ISO standards, but not to the real-world conditions that they subject their bikes to every day. And we haven't even included the additional weight of a child carrier, a trailer, or even the groceries on the back of the bike.

Why were these standards set so low? These are global standards, so they were written for the lowest common denominator. The average man in Japan or in China weighs 70kg or less, so they are more appropriate for these markets.

Let me be clear: These standards set reasonable and important baselines for bicycles. If all bicycles and components complied with them, there would be fewer accidents leading to fewer injuries and deaths.

But they are only minimum standards. Responsible bikemakers in Europe and other countries have an obligation to supplement these baseline requirements with more rigorous tests that reflect the actual ways that European riders use their bikes. A better protocol should include more challenging, supplemental tests like these:

- All load cycle tests should be performed on the same test piece. The standard allows the use of a different piece for every load test, which I find absurd;
- Each component should be tested as it is actually used on the bike, not just individually. For example, disc brakes should be tested while attached to the frame, not just the fork; full-suspension frames should be tested as thoroughly as conventional frames; and fork steerer tubes, which are not included in the standards, should always be tested.
- Groups of components must be tested together. When tested separately, they should be subjected to worst-case scenarios. For example, when testing a handlebar/stem combination, the test should always use the widest available handlebar.

Beyond safety. Ensuring worry-free mobility for cyclists requires more than just demonstrating their bicycles are safe. Their bikes must also be as durable and reliable as possible.

Commuters and other high-mileage riders shouldn't have to change their brake pads or bicycle chains every month. They shouldn't have to put up with suspension forks that give out after a year, or brake discs or rims that have to be replaced before the season is over.

For pedelec owners, these problems are even worse. Not only do pedelec owners use their bikes a lot more than conventional bike owners, but their pedelecs are much heavier, so the components are under more stress. And the associated electronic components of a pedelec add significantly to their complexity.

Pedelecs are helping the industry return to its roots as a means of transportation, not just recreation. With a motor, riders who are heavier or less athletic can now enjoy cycling. And hills and longer distances are no longer obstacles.

Unfortunately, few retailers or service providers can keep up with these increased demands. Someone who depends on a pedelec for his or her daily commute does not want to have to take a bike to the shop every few weeks for servicing — or, even worse, have to wait days or weeks for an essential spare part.

Back to basics. These are not unreasonable expectations. From the late 18th Century



European bikeshare programs, like London's Santander system, are helping revive cycling as means of urban transportation. (Photo courtesy of Beryl.)

until the outbreak of World War II, the bicycle was a, if not the, basic form of transportation for millions. The bicycles of the 1930s were innovative machines, and many were built to high standards of quality and durability.

Now that cycling has been reborn, it's up to the industry to make sure the bikes

we make and sell live up to the needs of the people who ride them.

That means every bike brand should go above and beyond the minimum requirements of the international standards to produce bikes that our customers can rely on, and enjoy, for years to come. ■ **DIRK ZEDLER**

Dirk Zedler

Since 1993, Dirk Zedler has been an analyst and expert witness on bicycle accidents and product failures for courts, bike and insurance companies, and private individuals.

He got his start in the industry by working for a large bike shop in 1986, and now holds the respected advanced engineering degree known as a "Diplom-Ingenieur."

Courts have recognized Zedler as an officially appointed and sworn expert on bicycles since 1994, and on electric bicycles since 2014. His staff prepares some 800 expert's reports every year.

Zedler – Institut für Fahrradtechnik und -Sicherheit GmbH (the Zedler Institute for Bicycle Technology and Safety) has used this wealth of knowledge, derived from its work in thousands of court proceedings and expert's reports, to enhance research and development in the bicycle industry.

The Institute sets the standards for the bicycle industry. It develops and builds testing equipment that is used by manufacturers to improve the riding quality and safety of their bikes, and by leading European bicycle magazines to



test them. The Institute's work provides a basis for European and American manufacturers to communicate with their Asian suppliers.

Manufacturers can buy test equipment from the Institute or use its state-of-the-art testing labs.

The Zedler Institute also prepares user manuals for bicycles and pedelecs. These manuals, now available in more than 40 languages, help consumers use their bikes properly — and in many cases have protected manufacturers from liability.

For more information, visit www.zedler.de.