

Dirk Zedler

Like green bananas, cargo bikes need ripening as sales take off

In some big European cities, cargo bikes are everywhere. Whether it's a big logistics company delivering packages or a mom taking her kids to kindergarten, cargo bikes have become an integral part of city traffic.



This compact cargo bike from Chike is an example of the wide range of cargo bikes on the market. Most are made by small companies. (Photo courtesy of Chike).

Yet despite their popularity, cargo bikes are not subject to any special safety or performance standards, even though they are very different from conventional bicycles. This article outlines some of the unique issues that affect cargo bikes, and offers suggestions for making them safer and better suited to the many jobs they are called upon to do.

The real sprinters. Like it or not, the electric motor is causing a radical shift in the way we use bicycles. Electric drives have made cargo bikes exponentially more useful.

A cargo bike may be used as “mom’s taxi,” as a shopping cart, or as a corporate vehicle to transport tools and supplies. (See our overview of cargo bikes at Eurobike on page 44.)

Big logistics companies are experimenting with cargo bikes for “last-kilometer” deliveries. Some park a container full of parcels in a busy city quarter at night, and rely on a fleet of cargo bikes to deliver the parcels to their final destinations during the day.

We are talking about huge volumes of packages, most of which are neither big nor heavy, generated by the popularity of online shopping. Consumers expect home delivery — and they expect it quickly.

But speed is something that conventional delivery vans, like the ever-present Fiat Ducatos, Mercedes Sprinters or VW Crafters, struggle with. Cities are congested, and bumper-to-bumper traffic combined with a lack of parking spaces make it hard for delivery vans to do their work. They often double-park, obstructing traffic and infuriating others.

In contrast, cargo bikes with electric assist of up to 25 kph are classified as bicycles. They can operate in bicycle lanes and can be legally parked on sidewalks, giving them unbeatable advantages over delivery vans for the last kilometers of a supply chain.

Big bikes, small market. Cargo bike manufacturers tend to be small or even tiny companies. Because they are founded by committed and creative people, the variety of cargo bike models is huge, but most are produced in relatively small numbers.

Few components are engineered specifically for cargo bikes. Brands instead must rely on standard bike parts, which aren’t intended for the loads and mileage typical of cargo bikes.

Consider that a cargo bike used to deliver parcels, or pizzas, may rack up mileage of 20,000 kilometers or more in one year. That’s more use than a typical city bike will see in 10 or even 15 years.

Such heavy use stresses components. Replacing brake pads and disc rotors every few hundred or thousand kilometers is annoying and expensive. Overloaded forks can collapse suddenly while in use, putting the rider in danger. Imagine if the rider’s “cargo” is a child.

There are no minimum safety standard for cargo bikes. But that may soon change.

The Standards Committee of the German Institute for Standardization e.V. (DIN) is about to publish draft safety standards that have been in development for two years. In addition, the German Association for Materials Research and Testing (Deutscher Verband für Materialprüfung und -Forschung e.V. / www.dvm-berlin.de) has scheduled a workshop on the fatigue strength and safety of cargo bikes. This workshop will take place at the end of November at the Zedler-Institut in Ludwigsburg.

Not yet mature. As a bicycle expert, I view many of the cargo bikes on the market as more like prototypes than mature products. In Germany, we have a saying: “Die Banane reift beim Kunden,” or “the banana ripens at the customer.” Cargo bikes are like unripe bananas:

They sometimes aren’t fully developed and tested before they are delivered to the customer, who has the responsibility to “ripen” them by fixing their problems.

Delivering a hot pizza to a hungry customer is very different from transporting a load of children to kindergarten, which is why there should be different classifications of cargo bikes.

In fact, I believe the industry needs to take a completely new approach to the design, manufacturing, and testing of cargo bikes. Standards are needed to define the allowable service life and maximum mileage for a cargo bike, including a schedule for maintenance and for the replacement of components.

The rise of electric cargo bikes makes such standards even more imperative.

Cargo bikes once were limited almost exclusively to flat terrain. But with electric drive systems, they can now haul cargo up and down hills. While that makes cargo bikes more versatile, it also imposes significant new challenges for riding stability, construction strength, braking performance and other aspects.

While cargo bike manufacturers have a lot of experience with a bike’s fatigue strength on level terrain, more research is needed for these new types of uses.

I do not support the concept of a “universal” cargo bike that can be used for weekend shopping as well as for child transport. In fact, there are good reasons why critics have called for a ban on transporting children in cargo bikes.

It’s common to see unbelted children horsing around in a cargo bike. They

can unbalance the bike and force it to drift out of a bike lane. Such careless use is also a thorn in the side of insurance companies.

So I recommend that cargo bike brands make specific models for specific uses.

Another alternative is modular chassis that can be adapted for specific uses with add-on components. We are seeing some examples on the market, such as a box or cage equipped with seats and four-point safety belts. They can be child carriers, or reconfigured to haul loads that can be tightened in place with adjustable strapping systems.

Something is missing. Where are the big global bike companies? Will they enter the cargo bike market, where they can apply their expertise in engineering and product development?

Or will their absence create an opportunity for companies outside the industry, as we’ve seen with the boom in dockless bikeshare systems?

Perhaps the big logistics corporations will begin making cargo bikes. In Germany, Deutsche Post has proven that it can be successful with its four-wheeled Streetscooter, even though Deutsche Post is from “outside the field.”

Automobile manufacturers seem to have missed out on the cargo bike boom. Now, we wonder whether the big bicycle brands will also miss out — or whether they will recognize cargo bikes as the next big growth opportunity for our industry. ■ 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.

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