

Trefecta DRT: The \$25K high-tech, military-grade electric super bike

By [C.C. Weiss](#)

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The Trefecta DRT is a high-tech e-bike built for military and civilian riding

[Image Gallery](#) (16 images)

Much like the auto market saw the rise of the supercar, the electric bicycle market is seeing the rise of the super e-bike. The super e-bike is far removed from the average electric bicycle and is essentially a motorcycle hiding inside a lighter, simpler bicycle body. The new Trefecta DRT bike doesn't even hide it that well as its military-spec aluminum frame is as much motorcycle as bicycle. That's okay, because this folding super e-bike aims to "create the game, not change it."



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When the designer of the [world's most powerful electric supercar](#) got involved in the electric bike game with the [Greyp G-12](#), it was very clear that the electric bicycle was destined to be more than just a pedal-assist commuter shuttling urban-dwelling industrial designers and tech consultants to and from the office each day.

To be fair, the movement started years before that, but having a player like Mate Rimac, whose battery technology can also be seen in the [world's most advanced hybrid supercar](#), in the game definitely helped strengthen the segment. With zero-pedal, full-throttle modes, and speeds exceeding 40 mph (64 km/h), these bikes are in a category all their own. On the road, they're not quite electric bicycles and not quite motorcycles, and on the trail, they're not quite mountain bikes, not quite dirt bikes.

So Trefecta Mobility, which describes itself as a "an international team of Dutch, German and Swiss engineers," doesn't really create the game or a new category of vehicle. It just plays the game for a more affluent audience with a really nice piece of high-tech, fast-but-rugged equipment.

The 20-in Trefecta DRT frame is crafted from 7075 aluminum, which takes the form of aluminum blocks instead of familiar tubing. The beefy design, which was developed with military specifications in mind, is meant to ensure that the fast, powerful bike holds up to any angry elements thrown at it. The frame also protects the internal cables and components. For the wheels, Trefecta capitalizes on the weight and strength advantages of carbon fiber, using a six-spoke, 26-in design.

In terms of its electric drive, the DRT packs a 4-kW motor, a 14-speed Rohloff Speedhub and a SmeshGear transmission. At low speeds, motor output is managed by a pedelec system aimed at maintaining an ideal blend of pedal assistance and battery usage. You won't necessarily want to be pedaling when gunning for the top speed of 43.5 mph (70 km/h), so there's also a right-handlebar throttle for cranking up motor power alone. The motor can send up to 184 lb-ft (250 Nm) of torque to the rear wheel.



The rider controls ride mode and other settings by way of the Trefecta-designed CAN-bus fly-by-wire computer mounted at the center of the handlebars. They can also use the computer to choose between automatic gear shifting and electronic gear selection and to control the settings of both the suspension fork and the rear shock. The computer also delivers the usual trip functions, showing speed, battery life, distance and other important data.

The computer system includes Wi-Fi and Bluetooth for connecting with the accompanying Trefecta iOS app, as well as using other iPhone navigation and fitness apps. A built-in waterproof dock in the upper frame provides a convenient, visible place for mounting one's iPhone.

In terms of battery power, the Trefecta is powered by a 60-volt lithium-ion unit stored inside a lockable compartment in the upper front the frame. Trefecta estimates the battery can provide enough juice for up to 62 miles (100 km) of range without any pedaling. And since price will be of no object to DRT buyers, there's no reason they shouldn't buy extra batteries and take advantage of the quick-swapping system. The battery charges in about three hours when plugged in, and a regenerative braking system adds some charging on the move.

Other DRT components include a big upside-down fork with up to 180 mm (7 in) of travel, a dropper seat post with up to 125 mm (4.9 in) of travel, Ergon grips and saddle, Schwalbe mountain bike tires and Hope disc brakes. The rear shock offers up to 200 mm (7.8 in) of travel.

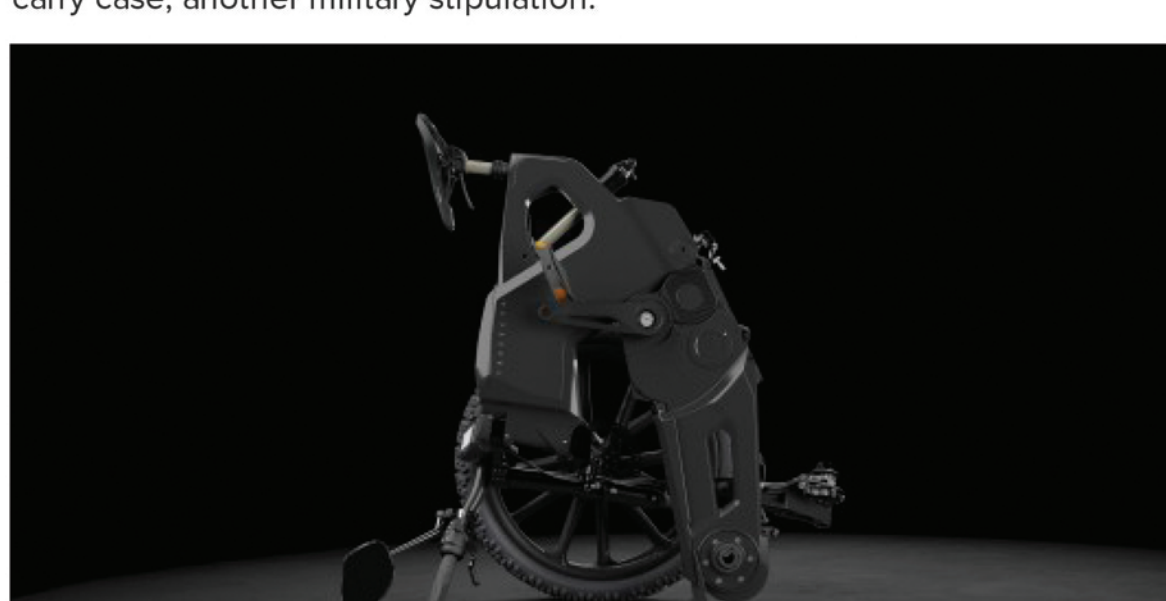
As you might remember from the headline, the DRT costs US\$25,000, based on the conversion from its €22,500 base price (okay, it's actually around \$24,630 at current exchange rates, but that makes a messy headline). It is available for pre-order now, and Trefecta also plans to market the URB speed pedelec road bicycle for €23,500 (US\$25,720). A fully customizable, CNC-machined version of either model will start at €33,333 (US\$36,485).

The DRT is clearly a lot of bike, but is it enough bike for that much price?

There's really not a lot of performance separating the DRT from super e-bikes that sell for a third or half the price. Anyone shopping for such a vehicle would do well to look at the aforementioned G-12, [eSpire](#) or the [Stealth Bomber](#). Some of those competitors are actually a little faster.

We asked Trefecta directly why it's bike is priced so high when compared to the competition, and company founder and chairman of the board Haiko Visser took the time to fully explain the reasoning behind the price, which is twofold. First, Trefecta designed the bike from the ground up, from the battery pack, to the fly-by-wire control system, to the front suspension. It is largely a custom design, using only select off-the-shelf components.

Second, as we mentioned earlier, Trefecta created its design to withstand the increased demands of military use, including capacity for carrying up to 353 lb (160 kg) of rider and gear, providing enough torque to get a fully-equipped soldier motoring up a 45 percent incline, and offering a 31,000-mile (50,000-km) lifespan. The bike can also fold down into an available carry case, another military stipulation.



Trefecta has been in talks with the Dutch army about supplying the bike for peacekeeping operations. Beyond that, we think that the high price of its bikes might dissuade purchase by most entities without the buying power of a major governmental organization. The company is hoping the bike will catch on with wealthy luxury buyers, and it spent a good chunk of last year touring luxury and motorcycle shows, including [Intermot 2014](#).

It plans to attend next month's Top Marques Monaco show, where it will find a crowd of exotic car and yacht enthusiasts with the wherewithal, if not the desire, to buy a \$25,000 bicycle. Maybe a high-tech, high-priced electric bicycle is exactly what an ultra-wealthy businessman will want for riding (and being seen) from superyacht berth to city center. Trefecta does its development and testing in Switzerland and manufacturing in the Netherlands

We would think bikers would want to avoid really rugged, challenging off-road tracks on their car-priced bikes, but Trefecta's promo video suggests it sees the potential for counting full-blown freeriders among its customers (or at least rich folks with a serious taste for adventure). Watch the DRT tackle both pavement and rock in the video below.

Source: [Trefecta Mobility](#)