

smart plugs in

america's only microcar adds electric drive

Smart introduced its fortwo microcar in Europe in 1998, the result of a joint effort conceived by Swatch watch in the late '80s and cemented with Daimler in the early '90s (with "smart" reportedly standing for "Swatch Mercedes Art").

Much has happened in the ensuing years, and smart is now available in 41 markets worldwide, including the US, where it is marketed by Penske Automotive Group.

We recently joined smart USA in New York City, as they introduced the latest and coolest iteration: the smart fortwo electric drive (they continue their preference for lower-case letters throughout). Rolling off the production line since late 2009, the first were delivered in

Europe last December, in Germany and to the mayor of Rome (Italy being their second largest market). Due to huge demand, initial production was increased from 1000 to 1500, and output ramps up further for 2012. It's been so popular, in fact, that now that it's coming to the US, you'll have trouble getting one right away, but sign up and be patient.

Electric drives have been in smart's plans from the start. The smart fortwo electric drive loses nothing in safety, agility, comfort or space. The battery is underfloor between the axles where the fuel tank is located in a gasoline smart, leaving just as much interior and luggage compartment space.

A 30 kW magneto-electric motor with an

amazing 885 lb-ft of torque reacts without delay, for surprising acceleration: 0-36 mph (60 km/h) in 6.5 seconds. A participant in a large London trial said, "You can beat anything at the lights." Maximum speed is limited to about 60 mph (100 km/h), suitable for city driving.

Smart USA chose New York City to launch its new smart fortwo electric drive because of the obvious suitability of a small, clean, fuel-efficient car for a large, crowded, parking-deficient city. But it's as symbolic as it is practical. Not only was our water taxi ride down the Hudson River, past the Statue of Liberty and up the East River to the Brooklyn Bridge evocative of the original US introduction of the smart from across the great pond two years ago. But, point out, New York had 50% electric cars 100 years ago. So in that sense, smart is using the latest technology to take the city back to a simpler time. And New York is pioneering alternative power trains already, with all taxis hybrids since 2009, and 1675 Daimler Orion diesel-electric hybrid buses in service.

The microcar is a great concept. So why smart? Jill Lajdziak, smart USA president, points out at our meeting that smart is first in the microcar segment, and it's the *only* microcar in the US. Add the confidence of 13 years' experience in the rest of the world, and round it out with a well-acknowledged cool factor.

When the gasoline smart arrived in the US in 2008, sales were strong. Gasoline had suddenly shot to \$4.50 a gallon, the economy was still pretending to be intact, and there was great pent-up demand from all its media attention and hype. The result: 24,000 sold in the first year.

Gasoline prices have subsided a bit, the economy is—well, you know. The company knows a smart is usually bought as a second, third, even fourth vehicle, so borders on discretionary spending. And many buyers, with gas down a little, are going for a last hurrah with big guzzlers. But the writing is on the wall. Manufacturers, governments, engineers, utilities and sanctioning bodies everywhere are hard at work on an electric future (not to discount parallel efforts at futures involving hybrids, natural gas, hydrogen and other technologies).

And smart is riding the crest of this wave. There are now 77 smart dealerships in the US, with the newest ones in Puerto Rico and Hawaii (this one focused on electric).

Lajdziak acknowledges the most common questions about the smart fortwo: is it safe? will I fit in it? will it hold my stuff?

Derek Kaufman, VP for business development, says that while physics can't be ignored, "small can be safe." The car has been out long enough to verify this. Its tridion safety cell and sandwich construction are

highly innovative. For more information and, most importantly, owners' stories, we encourage you to visit www.safeandsmart.com.

As with safety, the company is getting direct information on owners' power usage. The cars themselves provide information for analysis, and owners are happy to provide it. As Kaufman says, when presented with this opportunity, "owners get real interested, real fast." Owners also have a personal website to track and compare their details.

The electric smart can be charged at any normal household socket, either 110 or 220v. The cars will have a J1772 standard EV connection (though our test cars flown in from Germany did not, prompting the company to also fly in prior European charging stations). A consortium of Clean Cities Coalition, ECOality and others is currently hard at work securing sites for these recharge points in Arizona.

The smart fortwo electric drive can be recharged from about 20 to 80% in 3.5 hours. A full charge from zero to 100% takes 8 hours. A fully charged battery has sufficient juice to cover about 83 miles, which, along with zero local emissions, is ideal for urban use. 87% of potential buyers express "range anxiety," unsure whether this is enough. With a typical commute at about 30-40 miles (or 4-5 hours), it should be plenty. This is borne out by the fact that after two years of actual ownership, the anxiety number drops to just 17%.

The electrification of the smart fortwo is paradoxically called [a] a real milestone and [b] just another evolutionary step. We agree on both, and we know we'll see a lot more of this. Ultimately, the change to electric powertrains can have massive environmental and resource benefits, making it, as smart says, "a geopolitical game-changer." There are other electric cars in the works, but with new infrastructure coming online and range still relatively limited, the smart already fills the most appropriate niche for the first wave of commuter electrics.

Another huge benefit of electric? Gone is the one and only deficit of the original gasoline version. We had driven the original gasoline smart fortwo before the LA Auto Show in 2007, just prior to its US launch. Despite going in with great optimism, we found the shifting so awkward it was downright disturbing. The folks at smart know this, but they like to say the US market doesn't understand a "manual automatic" and expected it to work like an automatic; now they call it a "manual with self-shifting" or "smart-shift." We had found a transmission, call it what you may, that halted noticeably between shifts, even in the thick of traffic. A better solution? In the smart fortwo electric drive, there are no gear changes. Et voilà. The car is now flawless in this category.

The smart system preconditions the bat-

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tery while running. The system can not only preheat but also *precool* the car before you get in. Sold?

Systems can also be set or checked from your iPhone, using a slick new app. Presented to us by Chris Cardé, senior systems engineer for R&D, this app (\$10) is a stunner: it controls radio presets, maps (including POI search on-board or off-board with Bing), works with or without a signal and is so fully integrated at the original equipment (OE) level, it can for example mute the internet radio for navigation. (A fuller navigation feature will be rolled out later this year for an upgrade fee.) If you have worked with typical head-unit connections to iPhone, iPod or MP3, you'll appreciate the level of integration built into this app.

As for our test drive in the mean streets of Brooklyn—for size, maneuverability, parking, convenience, as you would expect, there is nothing like the smart. As far as respect from our fellow travelers? Fuggedaboutit. We encountered flocks of aggressive schoolbuses, fleets of fire trucks suddenly filling both lanes head-on, multiple large panel delivery trucks ditto, and opportunists of every stripe thinking they could pass, park or back up whenever and wherever they wanted, in the face of our minuscule presence. Again, no big surprise.

Derek Kaufman points out that the smart concept started out as a congestion and parking solution, but also represents mastery of "material conservation." Use of electricity is one thing, but this minimalist package has benefits from birth to disposal. And since 70 to 80% of drivers travel solo in their vehicle, small is just appropriate. We'll watch to see whether Arizona expands its original very limited HOV program in this direction.

Initial rollout is in five areas: Portland, Silicon Valley, Orlando, the Boston-Washington I-95 corridor, and Indianapolis. Smart considers Indy a key prototype, with two ring roads, two utilities inside and outside those, both of which they are working closely with. With a giant Penske presence in Arizona, we anticipate cars here as soon as feasible. Pricing so far is a carefully guarded unknown. ■

