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## The Miracle-Hybrid from Vorarlberg

*Part 1 of our series "Autoland Austria": How the Lustenauer company Obrist eradicates the disadvantages of combustion and electric mobility and invents a better Auto future. A factory visit including test drive with the "HyperHybrid".*

About two million euros, including development costs, would be the unobtrusive single item cost of that you see above - if you could buy it.

Of course, you would not have gotten a dazzling feast for the eyes, as you can easily see: Despite it's more than exclusive prototype status, there would be no bouncer in front of the noble hotel behind his desk to help you with your luggage.

What makes this thing so special?

Well, first of all, nothing. In fact, visually it is a Chinese Geely EC7, Saloon of the lower middle class and atmospherically, perhaps comparable to a minimally equipped Opel Astra of the predecessor generation.

But, it is a perfect symbol of the global mass average car that small to mid-income people can usually afford – and that's why it's the most important car in the world when it comes to sustainably improving our environment.

Says Frank Obrist, founder of the Vorarlberg 35-person company, which bears his last name. With his know-how to make our future cleaner, the man has made his life's work, as we discover during our visit to Ländle, as we can experience his invention called "HyperHybrid" in the literal sense of the word ...



**I love to think about sustainable solutions for the environment. The key objective is to provide eco-friendly mobility that is still useful for many generations.**



**Frank Obrist, Founder and CEO of The Obrist Group**

## What is and what can the Obrist HyperHybrid do?

Basically, it is a serial plug-in hybrid system that largely eliminates the disadvantages of combustion and electric motors. It is more economical, cheaper in production and smaller than the known (parallel) hybrid. It also offers all the benefits of electric mobility – minus range anxiety, lack of charging infrastructure or exorbitant prices. More in detail below.

This is how it works: A small 1.0-liter 54-hp two-cylinder gasoline engine (with Obrist patent) uses a generator as power and feeds an extremely compact (already standardized for mass production) 11-kWh battery, which will fit every car. There is no mechanical connection between the petrol engine and wheels; these are always driven by the 85-kW electric motor, which uses the battery.

The trick is: The unit works almost permanently in the optimal load range and only delivers as much power as is needed in the moment. The engine will only switch on when it's really needed; everything dynamic comes exclusively from the battery. We will come back to this later during our test drive.

But now let's take a look around the Obrist Headquarters ...

## Headquarters visit in Lustenau



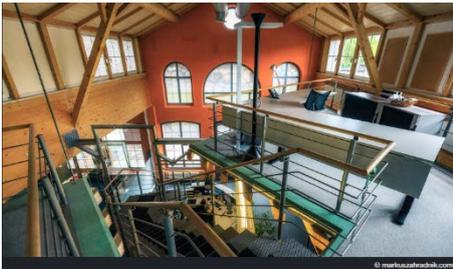
**Silicon Ländle:** Founded in 1996, Obrist sees itself as a technology provider and already works together with brands such as Audi, BMW and Daimler. The first environmentally friendly air conditioning system with the coolant R744 in the new Mercedes S-Class was developed here. Incidentally, the [Tesla Model X](#) in front of the entrance belongs to E-car fan, Frank Obrist.



**No borders:** Ländle or not: Here one obviously looks far beyond the "Xiberger" (a slang word used for people living in Vorarlberg) mountain ranges and thinks internationally. The Obrist post box is US provenance, so far traveled and may therefore be understood as a symbol of the company philosophy.



**Emotional theme:** To start our visit, there is a detailed presentation for me in which Frank Obrist explains his world to me. When he talks about the future and the environment, he begins to swallow considerably and gets wet eyes. No question, this is not a typical CEO with a pure profit intention, but one who really wants to change something.



**Open architecture:** The beautiful interior of the building reminds me spontaneously of the Harry Potter magic school Hogwarts, only [the stairs do not move as if by magic](#). Comparing this sight with typical “cubicle style” offices, one can imagine the difference it makes for a clear view of “things”.



**Musical:** Normally, in company offices in the square next to the reception desk, there are a few uncomfortable armchairs and a side table with four-month-old magazines of questionable reading quality. Obrist has a grand piano. Here one might also like to interpret again.



**Klimabündnis 2025 (Climate alliance):** Parts of Western Austria have become known as the Voluntary Climate Neutrality Alliance 2025 for foresight. [\(more info here\)](#) As a company committed to environmental protection, Obrist also follows the strict eco-goals.



**That's all you need:** Obrist's patented two-cylinder petrol engine is, in principle, a sophisticated halved four-cylinder engine. An important part of the tinkering: a 1:1 object made of clay-like material, on which the later form can be analyzed.



**From 4 make 2:** Conceived, adapted, developed and built in-house: the small one-liter unit that feeds the batteries of the HyperHybrid via a generator.



**Huge market China:** If not already done, Chinese car manufacturers will soon bring the European competition in terms of electromobility into a sweat. Connection with Obrist: The brand Geely was the first licensee of the company – a reason why the HyperHybrid prototype is in the EC-7 dress.



**Miracle Fuel DMC+:** Frank Obrist: "We are the first company in the world to have CO<sub>2</sub> neutral fuel in house." DMC+ is a 115-octane gasoline and diesel replacement that does not smoke when burned. If the suggestively-good-smelling fuel would prevail across the board, zero emissions would be reached. Disadvantage: To replace the energy density of 1 liter of gasoline, you need 2 liters of DMC+; that is, twice as large tanks.

\*\*for full size/hd photos and the original article in German, please click [here](#).

## Starting 2025, buy for 18,000 Euros?

Interesting for the market opportunities of the patented HyperHybrid: Obrist calculates that a middle-class car equipped with it can be sold for 18,000 euros to the customer: "This is the price you have to achieve if you do not want to have a significant impact on mobility unlike Tesla with 100,000 Euros." This is the financial threshold with which you can turn the mobile world in the direction of electrification.

We wanted to know from Frank Obrist when he expects the mass use of his idea: "In 2025, then we already have 50 percent cost advantage over pure electric cars."

Incidentally, around 60 kilometers are purely electric inside with the HyperHybrid, which is quite enough for the average daily distances of most motorists. In the combined everyday consumption under realistic conditions, including longer motorway stages, etc. then goes from a consumption of less than 3 liters of gasoline. That's only 60 percent of the average practice consumption of a current Toyota Prius.

Keyword Toyota Prius, including original quote from Frank Obrist: "All manufacturers have always favored the parallel hybrid. The standard engine is indeed from the series band, and then you just add a little electrification. In the best case, I can sneak a bit more than electric, because as soon as I give a little more gas in the city, the gas burner jumps in immediately and I come from the five-star driving feeling into the one-star range, where I have a miserable gasoline engine or Diesel, that only makes a lot of noise and nothing else. That is the reason the masses do not buy, and all the manufacturers wonder why no one wants a hybrid."

We notice: Frank Obrist is a pleasingly straightforward conversation partner who is not afraid to call his point of view by name. Status quo phrases are not his thing. Want a few examples?

## 5 questions to CEO & Founder Frank Obrist about:



### ...his philosophy:

“In principle, our hybrid technology is just a step backwards to a simple and intelligent solution. Less cost and weight, but still all the benefits of electric driving, but without the range problems.”



### ...pure electric autos:

“All manufacturers who now rely on pure electrification are doomed to death. Our concept is the better solution that everyone needs to get involved with because they cannot help it.”



### ...electric pioneer Tesla:

“The few cars that Tesla builds do nothing for the environment. Our HyperHybrid is quasi Tesla’s Model 3, but stands for 18,000 euros in the garage.”



### ...the possibilities of the HyperHybird:

“Our concept has a modular structure and can be transferred to any vehicle class, from compact cars to large SUVs.”



### Changes in the driving culture:

“I am one hundred percent sure, that even the very diehard driving dynamics fans will sooner or later switch to electric driving.”

\*\*for full size/hd photos and the original article in German, please click [here](#).

# The advantages and disadvantages of the concept

## We first look on the plus side:

\*The HyperHybrid is **NOT a range extender system**. All driving dynamics always come from the battery. Frank Obrist: "I'm really allergic to that, it's all in the name 'Range Extender', everything that's fundamentally wrong on the part of the engineer. Why should I buy an electric car and a conventional gasifier will do all the work when the batteries run out; the BMW i3 is the best example of this nonsense."

\*A middle-class vehicle with HyperHybrid can be sold **for under 20,000 euros** to the end customer, including all the benefits of electric driving, but without the feared range anxiety: It's a plug-in system, in terms of range no charging infrastructure needed. You can plug in the car, but you do not have to.

Obrist: "At over 65 km/h, our gasoline engine gently recharges the battery, which is what all of today's batteries least of all can do; it is fully charged and completely discharged - there may be 500 cycles, then the capacity is 80 percent. On the other hand, we always load up a bit in between, so the same chemistry can deliver ten times more energy." And if you must go further than the 60 possible E-kilometers? Then **under three liters** of practice consumption without any problems - and without conscious self-mortification while driving.

\*When the engine is working in the HyperHybrid, it is unlike Toyota Prius & Co., **barely audible** and does not bother with the silent e-car feeling. Obrist has also packed a self-developed "[Zero Vibration Generator](#)" on the twin-cylinder, which is explained by the boss: "Anything that makes the unit wrong in its cycle to the left does it to the right now, bringing the vibrations to opposite directions. It's going to be as quiet as a twelve-cylinder and we can [put a coin on it](#) that will not fall."

\*The HyperHybrid has a modular design and can be scaled, so it **fits into any vehicle category** – from compact car to large SUVs. Despite the same size of the drive unit, high-power concepts in the power range of Tesla are possible, for example, with different cell quality of the batteries.

\*The drive unit is **extremely cheap and saves space and weight**. The battery weighs only 112 kilograms and costs 2,000 euros. The engine is just under 19 centimeters wide and comes to 1,200 euros. Manufacturers using the HyperHybrid can produce much cheaper and put the car in the showroom with 20,000 euros less profit margin.

In addition, remains at comparable outside length about 25 centimeters more interior length – which in car design, is an entire galaxy. The space gain would benefit occupant comfort, the weight saving with both the dynamics and the costs. (lighter chassis, smaller brakes, etc.) Obrist: "My next dream would be to make a completely new vehicle class: very dynamic, maximum interior, but with a shortened front end, without touching the required crash length."

\*The Obrist battery is the only isolated rechargeable battery in the world that works flawlessly, **even in winter**. Obrist: "So a battery works at 40 degrees, but below zero, does not work properly. Ours can stand outside at minus 20 degrees for 20 days thanks to the design, and the internal temperature is still at 5 degrees plus."

## ...and what about the minus side?

\*The only disadvantage of the serial hybrid system compared to the widespread parallel colleagues: If the battery is not sufficiently charged on the road (for example, if a lot of power is called up in the long run), the HyperHybrid can only drive as fast as the generator supplies power to the electric motor, which alone is responsible for bringing power to the ground. In this rather rare case, in fact, only the 54hp of the two-cylinder is available, and that means: maximum 145km/h on a flat course with zero reserves for inclines.

Colloquially formulated: uphill then starved stop. With full battery, however, all 85kW can be accessed, which is enough for 165km/h on hilly highways

Incidentally, the classic E-car acceleration madness à la Tesla is not planned in the Obrist prototype: Although there is a lot of torque inherent in the system, **the usual wow effect is (deliberately) limited.** Here it is about representing the possible mass-everyday as realistically as possible.

So, it is finally time for our test drive in the marvelous thing from Vorarlberg. The CEO himself will accompany me in the passenger seat, and he has already chosen for us, a quite selective tour of the rock above Lustenau, which will show what his HyperHybrid can do...

## First test drive with the HyperHybrid



**Gray Mouse:** Insignificant car in a nondescript garage: Obrist's electrified Geely EC7 prototype awaits our exit in its cage. The only one of his race living, but if the world should someday come to their senses, things could change quickly.



**Badge engineering:** So much pride: Instead of the Chinese Geely logo emblazoned on the grille, a Xiberger counterpart. Unfortunately, I forgot in the excitement to ask Frank Obrist on which brand a Lustenauer Park Sheriff would actually issue the ticket. For in the drop-down menu of his handset, OBRIST is probably rather not up for election; that is my guess.



**First approach:** I open the hood and my eyes fall on the first of two black boxes installed in the car: The encapsulated front unit holds the two-cylinder engine and generator. The unit itself is built only 188 millimeters wide and it is probably well recognizable to laymen, how much space remains free, if instead of the original burner, this "Obrist-box" is used.



**The battery:** Depending on the capacity, current E-car batteries weigh up to 800 kilograms and therefore need a lot of space, no matter where they are placed in the car. The extremely compact 11kWh Obrist solution, on the other hand, weighs only 112 kilograms and takes little away from the trunk. Mind you: this is a bodywork that was not intended for such magic in series. You can't imagine how easy the system could be transferred to any vehicle.



**The first kilometer:** It's quite an adventurous feeling to steer an absolute cheap car from China, with all its shortcomings, but at the same time to know that exactly this specimen is worth around two million euros. When I suppressed the thought, it feels like a Geely must feel: moderately exciting. And this is an express compliment to Obrist: Anyone who manages to change a mass car so fundamentally that to a specialist journalist while driving, still nothing is noticeable, is on the right track.



**Tip-right-three-100?** Frank's anxiety slowly gives way to putting his "only child" in my hands: his cautious hints are becoming less as we rush through the city traffic in the rain. The HyperHybrid drives exactly like an electric car. It is surprisingly quiet on board, although (or because) nothing was changed on the standard noise insulation. If I hit the gas harder on a red traffic light, no engine is howling and there is also no pointless display, that proudly shows me in a thousand colours, which power flows are happening under my hood. Simple driving. Glorious.



**The mountain calls:** Hilly terrain is a weak point that is deliberately calculated in the prototype (which is supposed to represent the global mass car), but technically adaptable at any time. Also, Tesla-like power would be possible without any problems (see above). But I do not feel that way: On our mountain road, there are many tight corners and constantly changing between 50 and 70km/h speed limits. I have the feeling of being on the road with a silent 116-hp gasoline engine and do not want to be able to retrieve between two consecutive hairpins 700 electric HP.



**Strikingly inconspicuous:** I think: Those who want to bring a mobility revolution to the street, must make it in the everyday image rather inconspicuously. It is to reach those buyers, for example, that like to drive a VW Golf- the most successful paradigm of slow design evolution. The whirling mass of customers reject extreme optical change. So why put new technologies in "exciting" clothes all the time? During my round, I realize that no one turns around for our future Geely. It gets lost in the traffic. Perfect.



**His vision:** He wants to change the future of our mobility with his technology, Frank Obrist told me at the beginning. He has no lesser personal life goal than to improve our environment for future generations. While sitting next to him, I think: For me, the man is somehow the Austrian version of Elon Musk. With the difference that his vision, when implemented nationwide, starts where it really has to start: at the bottom. At 18,000 euros.



**Now on the show stage:** and from 2025 already a check-in option at the brand dealer you trust? The Obrist HyperHybrid drive as technology developed in a series fits into every car, saving both manufacturers and customers money and would actually significantly alleviate our creeping environmental disaster as a mass-produced product. Now you would only need a large manufacturer who can produce the quantities. Who dares?

\*\*for full size/hd photos and the original article in German, please click [here](#).

## My conclusion

Until a while ago, I was a staunch gasoline brother, a “*petrol-head*”. [The louder and stronger a car, the better](#). But then came Tesla: As the first motor journalist in Austria, I filmed my first round with the Model S at the company premises in Silicon Valley, and it was then clear to me: Something is happening here that is changing our global mobility.

Since then, a lot has gone further in the electric car sector. [The things are from model cycle to model cycle suitable for everyday use](#), for the classic Golf customers are 300 kilometers range and, house number, 40,000 euros for a compact but understandable way too little and too much. The crux is well known: range, price and charging issues are the obstacles that make their success so difficult.

But there are good compromises from both worlds that can absorb the (very long-term) transition to full electrification: In addition to hydrogen ([not yet suitable for everyday use](#)), the hybrid system is currently the supposedly egg-laying wool milk sow. Some manufacturers are so far advanced, but misdirected, because almost no current hybrid offers what the mass of customers demand: namely, zero change in their everyday mobile behavior. You must accept that.

So, it happens that a hybrid Toyota Prius is currently relatively economical, but because of its huge battery in the trunk and the tedious noise pollution by its internal combustion engine, in terms of space and comfort, it is simply limited. So, no. BMW builds (in addition to bitter electrical tests) at the moment, good hybrids, but in the environment, are quite expensive and often fail because BMW customers are usually what I was – see the introductory sentence above – once. So, again no. As an extreme example, one could still cite Porsche, which hybridize even the reasonably inexplicable SUV success Cayenne and lure with insanely low prospect standard consumption, simply because the few purely electrically driven kilometers in the standard cycle of the first 100 kilometers may be counted. Common sense also states “no”.

What is really needed, would be a comfortable car with an ecologically sustainable drive, that you can buy for a small amount of money that drives most of the day electrically and is not dependent on any charging stations, as far as you want, and in the case of a longer route, would be a real three-liter car. Almost the Dacia among the hybrids, which affects the total cost.

Surprise: This car already exists. I just drove it.



auto touring-editor Christoph Löger at the wheel of the Obrist prototype. © markuszahradnik.com

It comes from Vorarlberg and in principle, manufacturers like VW would only have to access it and screw two black cars into a Golf to do something good for the world and for themselves.