

Frauscher Boats Mirage 740 Air (2020-)

Price

Base Price

Specifications

Length Overall	
BEAM	
Dry Weight	
Tested Weight	
Draft	
Draft Up	
Draft Down	
Air Draft	
Deadrise/Transom	
Max Headroom	
Bridge Clearance	
Weight Capacity	
Person Capacity	
Fuel Capacity	

Water Capacity	
Length on Trailer	
Height on Trailer	
Trailer Weight	
Total Weight	
Aft Deck	
Salon Inside Width	
Salon Fore & Aft	
Salon Height	
Salon Volume	
Galley Volume	
Master SR Width	
Master SR fore & Aft	
Master SR Overhead	
Master SR Volume	
Eng. Room Volume	

Acceleration Times & Conditions

Time to Plane	
0 to 20	
Ratio	
Props	
Load	
Climate	

Editor's Report

running found or type unknown

The futuristic design of the Frauscher Mirage 740 Air gives it a James Bond-esque appeal.

Brief Summary

Austrian builder, Frauscher, has been building wooden hulls since 1927. Their aesthetics have evolved from classic woodies to sleek speedsters propelled by both internal combustion engines as well as by electric motors. The Mirage 740 Air is not new since the model was previously available with a Mercury 350-hp sterndrive, nor is it the company’s first electric model. However, the combination of this particular design with a new electric propulsion package by Germany’s Torqeedo debuted in May, 2019.

classic style found or type unknown

Classically-styled Frauscher boats have been famous all over Europe for being exquisitely-built wood boats with super-lux detailing and price tags to match.

Mission

The purpose of the Mirage 740 Air is two-fold: First, it is perfectly suited to lakes and inland waters where combustion engines aren’t allowed. Second, it’s also positioned as a superyacht tender that can carry six to and from shore and venture out from the mothership to explore. The vessel is intended to operate where it can be plugged in and recharged and the Mirage (which can be custom painted) is likely to impress guests with its minimalistic design and smooth ride.

stem not found or type unknown

Torqeedo's clean propulsion pack on the Mirage 740 has plenty of get-up-and-go.

Electric Propulsion—Torqeedo Power

The most unique feature of our test boat was Torqeedo's Deep Blue system that combines a high-rpm 100 kW brushless inboard motor with twin BMW i3 Series, 40 kW batteries. The high-capacity lithium batteries are stacked one above the other in the engine compartment aft.

aluminum not found or type unknown

The engine compartment under the aft sunpad lifts electrically. It holds either a combustion engine or BMW batteries to power Torqeedo's 100 kW motor.

Torqeedo adapts BMW's i3 automotive batteries for marine use by adding a rugged damping frame to minimize shock, a venting system to channel gasses safely and waterproofing to IP67 standard. The new batteries tout a 31% increase in capacity (energy density) over the previous similarly-sized model.

battery bay not found or type unknown

With a footprint roughly 5' x 3' x 6", twin i3 batteries fit nicely into the exiting engine space.

State-of-the-Art Batteries

The advanced technology packed into the i3 battery is impressive, starting with the prismatic cells. Because charging and discharging leads to battery cells expanding and collapsing, the cells must be assembled accurately in a robust frame so they can reach their expected long service life. Prismatic cell design allows for efficient cooling.

The design is compact and helps even out temperature distribution within the battery. Additional compressor cooling helps in climates with high ambient and water temperatures.

In the unlikely event of excess pressure developing in a cell, prismatic cells can release excess pressure through a valve. This is a safety advantage over foil-welded or pouch cells. The built-in pressure safety disc allows gases to escape and ensures the battery stays waterproof to IP 67 standard under normal operation.

The entire 360V pack weighs 613 pounds and its rugged design is ideal for boat applications that place high demands on shock resistance like Frauscher's planing hull.

batteries not found or type unknown

The aluminum housing with a safety vent protects the 360V system.

Torqeedo Deep Blue i Motor

The Frauscher Mirage system is powered by the largest of Torqeedo's Deep Blue motors – the i100 kW, which has won awards around the globe. The direct-drive motor has twice the power of previous models and is available for electric-power only, or in a hybrid configuration with a DC generator and an integrated onboard energy management system for longer-range cruising.

i100 not found or type unknown

The award-winning Deep Blue i100 motor is the most powerful in Torqeedo's current lineup.

Torqeedo's Deep Blue 100i is the first fully integrated inboard electric propulsion system, which is available in two versions – 2400 rpm for faster planing boats and 900 rpm for heavier displacement vessels up to 120 feet. The focus of the entire system, from helm to prop, is on safety. In order to meet recognized production and safety standards, these high-voltage drive systems were developed by joint teams of BMW and Torqeedo experts - an effort that stretched over several years.

The system includes a pilot line, which is a standard in high-voltage systems in other industries. The pilot line runs through high-voltage shielded cables and high-voltage plug connectors, monitoring them for irregularities. If the pilot line detects damage to cable insulation or exposed high-voltage contacts, it shuts off the system in order to prevent short-circuiting.

CAD not found or type unknown

This CAD image superimposes the power system in the boat showing the battery, motor, charger, throttle and interface at the helm.

Other Power Sources. The Deep Blue system can also be integrated with onboard solar or hydro-generation for recharging underway. The Frauscher model will do well where recharging (with ordinary shore power) is available. On lake Starnberg, three facilities were identified along the lake's 13-mile length, which is more than adequate for hours of top-speed cruising since the batteries offer fast recharging up to 75 percent capacity in less than 1.5 hours.

electric not found or type unknown

Although normally powered by a sterndrive gas engine, the electric Mirage 740 Air has a direct drive with a shaft and rudder system.

engine vents not found or type unknown

Side engine room vents that normally bring air to the combustion engine are now used to cool the batteries and motor.

center helm not found or type unknown

The helm is at the center of the cockpit on a console behind an angled, smoked acrylic windshield. Twin bucket seats with bolsters provide comfort for the driver and her companion.

steering wheel not found or type unknown

The dash has the wheel to the left, the throttle on the centerline and an MFD to the right. Gages run across the top and the Fusion stereo control is just to the left and down.

throttle not found or type unknown

The cutting-edge throttle design reminds the driver of the advanced technology system under her control. A top-mount single throttle is inboard of the wheel, which is good for right- handers. It's one of five throttles that Torqeedo builds and its futuristic aesthetic fits nicely with the concept of high-speed electric propulsion. Bluetooth is built in for integration with Torqeedo's TorqTrac app that turns a smart phone into a system-monitoring device.

range not found or type unknown

Keep tabs on the range and health of the system with an MFD – the brand can vary.

To starboard, of the throttle is a “dumb” B&G display that has no internal navigation capability but is used as a BMS (battery management system) display. Each Torqeedo system is equipped with GPS so range is automatically calculated. It makes getting home with plenty of battery capacity quite easy.

Features Inspection

swim platform not found or type unknown

Boarding is easy via the integrated swim platform and starboard walk-thru that eliminates the need to step on the aft sun pad cushions.

electric windlass not found or type unknown

Just ahead of the sun pad is a storage space that also allows access to 12V battery power, for hotel needs like lights and stereo as well as the bow thruster and windlass.

windlass not found or type unknown

A Quick electric windlass installation is just aft of the anchor locker and has extra stowage space for dock lines and fenders.

image not found or type unknown

The ground tackle includes a thru-stem roller that keeps the deck clean.

image not found or type unknown

The twin, aft-facing lounges in the bow are perfectly relaxing.

Test Numbers

Top Speed. The Frauscher Mirage 740 Air has an overall length of 24' 6", a beam of 8' 3" and an empty weight of 4,189 pounds. With four people aboard, 10 knots of breeze and a light chop on Lake Starnberg in Bavaria, Germany, our top speed was 23.8 mph at 2200 rpm. The range was about 20 miles.

Boat Not Ready. Because she had just been launched for the first time that morning and her debut was a bit rushed, the prop hadn't been optimized, which seems to have impacted her performance (lower than anticipated top speed) and there was a significant vibration. The water pump that cools the motor could also be heard. Usually, we don't test boats until the builder has ironed out the wrinkles, but this was our only change to get on the boat, so we all took a gamble. At least we got a feel for the boat and what she could do if properly propped.

Handling

She cut through the chop easily and made surefooted turns. Overall, she was smooth throughout acceleration curve. The like was calm the breeze slight.

The Torqeedo Test

Happily, in July the problems with propping, vibration and the water pump were all put to rights. This time the boat was fitted with a 15 x 18 prop and performance was greatly enhanced according to the numbers the folks at Torqeedo were able to get. The boat was tested on a relatively high altitude freshwater lake, and it is interesting to remember that unlike combustion engines, battery power is not affected by altitude.

The numbers below were sent to us by Torqeedo and they seem to be consistent with the numbers we got given the problems with the prop and vibration. With this set up, it is clear that what is most important is range, not necessarily top speed.

Best Cruise: Best cruising range actually came between the numbers shown below, and was at 1985 RPM where the boat went 21.7 mph (35.0 kph) for a range of 23.6 statute miles (38.1 km).

Top speed was recorded by Torqeedo at 29.2 mph at a maxed out 2700 RPM with the Deep Blue motor in “boost” mode. They recorded a time to plane of 15 seconds.

Frauscher Mirage 740 Air powered by Torqeedo Deep Blue i 100 kW Motor

RPM	Power		Speed		Range	
	kW	HP	Kmh	MPH	Km	SMiles
791	7.7	10.3	10.0	6.2	103.9	64.5
1532	52.7	70.6	20.0	12.4	30.4	18.8
1875	70.8	94.9	30.0	18.6	33.9	21.0
3137	86.5	118.6	40.0	24.8	37.0	22.9
2700	125.0	167.6	47.0	29.2	30.1	18.7

It should be pointed out that this Torqeedo motor and the twin BMW batteries fitted on the test boat are not the builder’s standard offering.

Noteworthy Options

A 32-quart refrigerator can be tucked forward of the sunpad at cockpit sole level and a Bimini top will provide protection from sun and rain.

Price

The price as tested is \$337,000 with two thirds of that being the boat itself and the rest (approximately \$120,000) for Torqeedo’s electric propulsion package.

Observations

Torqeedo is the leading name in marine electric motor propulsion. It is building systems all the way from small trolling motors to the Deep Blue I that we have visited here. The Europeans are particularly keen on electric motors and eco-friendly power generation of all kinds, so it is no surprise that more boats their offer electrical power than in the U.S.

Also, the mode of boating in Europe is different than in north America, as all but a few inland lakes are relatively small. That puts a premium on style, uniqueness, and entertaining functionality. Boating with an electric motor is certainly a lot quieter – more like sailing. And that alone, has its joys.