torqeedo

Electric Boating 2018

ENGLISH
PREVIEW VERSION

เราตื่นเต้นที่จะอยู่ในประเทศไทย

We are excited to announce the opening of our new office in Bangkok, Thailand, serving the rapidly growing Asia-Pacific market.

Sustainability revolution

In the last months, it has become increasingly evident that we are in the acceleration phase of a sustainability revolution.

Recent developments reveal that electric mobility solutions are gaining footholds not only in the automotive markets but also in all other transportation sectors. Countries like Norway, India, England, France and China have announced they will completely ban combustion engines from roads between 2025 and 2040.

The sustainability revolution has also become evident based on the results of longer-term developments. Between 2010 and 2017 alone, the cost for solar photovoltaic energy has gone down by 81% and costs for onshore wind power have decreased by 63%. In some areas, these clean energy sources are already more economical than burning fossil fuels.

Offering sustainable products that deliver a superior value over conventional combustion engines has always been Torqeedo's core. We continue this tradition in 2018.

Our new 48 V battery, **Power 48-5000**, makes the use of AGM or gel batteries for electric mobility obsolete. Due to its long service life, it provides the ultimate cost-effective lithium battery supply for electric motors up to 10 kW and for electricity on board in general. It also features the highest energy density and superior safety.

Deep Blue, Torqeedo's award-winning 40 and 80 horsepower propulsion system, is the cornerstone of powerful electric mobility - from the tried-and-true plug-in electric to the highly customizable hybrid solution that provides complete energy management on board. With the new **BMW i8 high-power battery**, boats with limited space can now take advantage of state-of-the-art automobile battery technology and the highest energy density available in the marine market.

The new **Ultralight 403 A** models offer an advanced mount, providing quick and convenient mounting options for fishing kayaks and improved maneuverability.

The Cruise Pod propulsion system, which has won worldwide acclaim since its introduction in 2016, delivers lightweight and economical electric propulsion for sailboats up to 20 HP equivalent power. With the new **Cruise 10.0 FP Saildrive Mount** it has become even easier to refit from a diesel saildrive to clean, lightweight electric propulsion using the existing saildrive mounting points.

Since October 2017, Torqeedo has become part of **DEUTZ Group**, one of the world's leading independent providers of diesel and natural gas engines and an icon of the industrial revolution. Together with our new colleagues, our team continues to advance the next revolution in mobility – the sustainability revolution.

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- Very simple to install, thanks to improved mounting options

Power 48-5000 Battery page 46

- Latest BMW i module technology
- Far superior power-to-weight ratio
- Up to 80% lighter than AGM and gel batteries

Cruise 10.0 Saildrive Mount page 40

- Simple, lightweight alternative to diesel saildrives
- Proven motor system
- Low maintenance

BMW i8 Battery pages 18 & 59

- Latest BMW i module technology
- Ideal for boats with limited space available
- Reduces system weight to under 250 kg

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Boating the contemporary way

Torqeedo transforms your marine leisure activity into modern, clean and safe enjoyment. Our motors are leading-edge, high-tech design products powered by the safest and most powerful lithium batteries of their kind.

Please come aboard ...

- Simple handling
- Clean to use: no smells, no leaks, no fuel
- Many convenient features
- Avoid significant harmful pollutant emissions
- Modern design
- Low noise level
- Best-in-class safety


0.6
0.4
0.6
ZC
B
0.6
0.4

Electric workboats – a complete solution for professionals

Torqeedo offers single-source turnkey electric propulsion systems for commercial applications, whether passenger ferries, excursion boats, heavy barges, water taxis, ship tenders or autonomous vessels. Torqeedo supplies them all with highly customizable systems that include powerful motors, the latest battery and charging technology and intuitive throttles with informative displays.

Save 100% of your petrol or diesel costs
\+ Instead, spend a fraction of saved costs on electricity and battery write-off
\+ Reduce maintenance costs
\+ Enjoy high reliability

= If you are out on the water 100 days a year or more, you may save money by going electric.

... and protecting our waters and atmosphere is a bonus.

It all adds up with Torqeedo ...

Deep Blue high-power drives

Our 40 - 80 HP models from the Deep Blue series can save you money if your annual petrol or diesel bills exceed EUR 4,500, go to pages 50-69.

Cruise motors

In the power class up to 20 HP, our Cruise drive systems can reduce costs if your annual petrol or diesel costs exceed EUR 1,000. Find out more on pages 32-45.

What does a 5 HP petrol outboard have in common with 38 cars?

Internal combustion engines discharge a number of harmful substances, including carbon dioxide (CO_2), nitrogen oxide (NO_x), hydrocarbons (HC) and particulate matter. Imagine you are running a new 5 HP four-stroke outboard for one hour. Would you suspect that you are producing the same amount of NOX and HC pollution as if you were driving 38 new cars at 95 km/h for the same length of time?

Let's look at the facts.

The automotive industry uses sophisticated methods to avoid nitrogen oxides and hydrocarbons during the combustion process, and then uses exhaust aftertreatment to further reduce them. Standard methods include electronic engine control, exhaust gas recirculation and catalytic converters, which have been required equipment in automobiles for around 30 years.

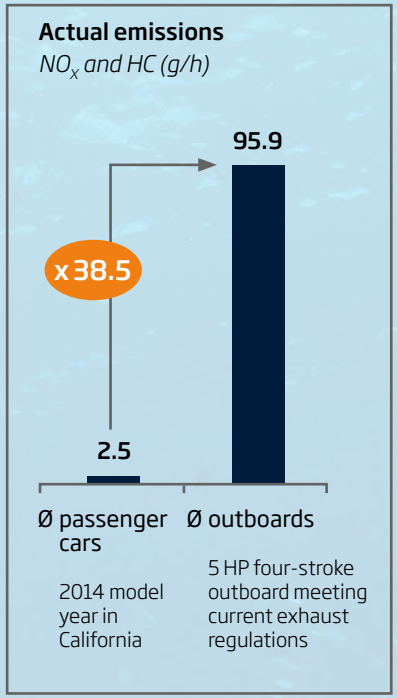
Outboards do not have any comparable systems – not even the very latest models. This is why the level of harmful nitrogen oxide and hydrocarbon emissions, even from very small petrol outboards, is dramatically higher than in cars. Though there are far fewer outboards than cars, their pollution is substantial and vastly out of proportion.

Nitrogen oxides and hydrocarbons are poisonous, carcinogenic, and contribute to the formation of ozone and acid rain.

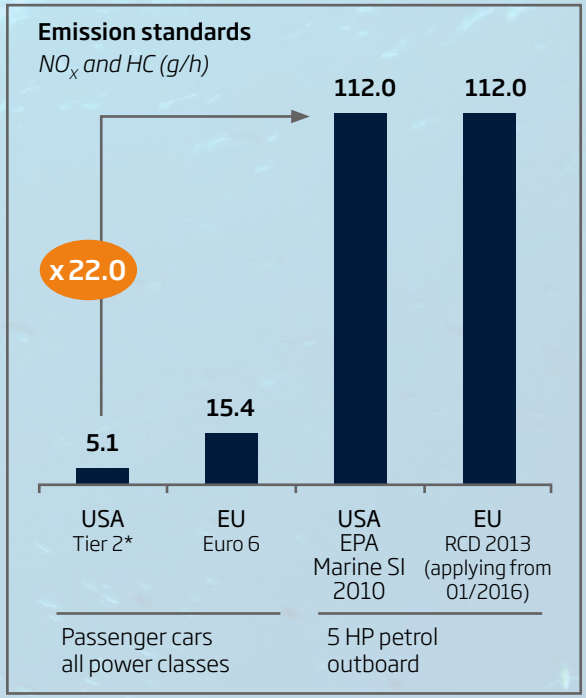
If you can avoid these high levels of emissions by switching to quiet, modern and emission-free electric drive systems – then why wouldn't you?

Emission asymmetries in numbers:

Running a 5 HP four-stroke outboard at full power for one hour produces the same NO_x and HC emissions as running 38.5 new cars at 95 km/h for the same period.



Official emission standards confirm that dramatically higher nitrogen oxide and hydrocarbon pollution emissions are permitted for outboard motors.
Even small 5 HP outboards may produce up to 22 times the NO_2 and HC emissions compared to a passenger car.



In this comparison, cars move significantly faster than small outboards. Outboards would perform even worse if we looked at emissions per kilometre rather than per hour. More powerful outboards are relatively more efficient than smaller outboards, i.e. they emit fewer harmful substances per HP. In absolute terms, however, their pollutant emissions are far greater than that of small outboards and would perform significantly worse in these comparisons.

* US passenger car emissions refer to (non-methane organic gases) plus NOx, not to HC plus NOx.
Sources: United States Environmental Protection Agency, California Air Resources Board, Environmental Capital Group

Advantage Torqeedo

1 HP is 1 HP. Isn't it?

Standardisation of power is nothing new. It all goes back to James Watt, who defined horsepower in the 18th century to demonstrate the performance of his steam engine. Since then, it's been measured uniformly in HP or, in honour of its inventor, in watts. But it depends on what is measured where.

The most meaningful performance indicator of a drive system is propulsive power, which indicates the performance actually delivered by the motor to move the boat, taking all losses, including propeller loss, into account. This method has been used in commercial shipping for nearly 100 years.

For petrol and conventional electric outboard motors the propulsive power is not normally disclosed. Instead, less informative parameters, such as the shaft horsepower, input horsepower, or even the static thrust, are used.

That wouldn't be so bad if the differences between the various power ratings were minimal. However, the opposite is the case: a gasoline outboard engine with a shaft horsepower of 4 HP provides a mere 1 HP of propulsive power. How can the efficiency levels of different motor types be truly evaluated?
We'll shed some light on them.

Shaft power: Power rating of petrol outboards, comparable with passenger cars (torque x angular velocity). The rating is expressed in HP or kW but does not take propeller loss into account, which can vary by anywhere between 20% and 75%.

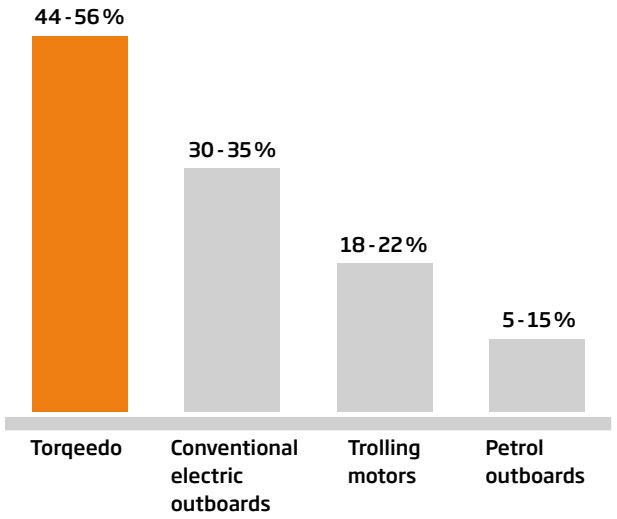
Superior propulsion and superior overall efficiency

Our focus on optimising propulsive power and our use of the latest technologies means Torqeedo has the highest overall efficiency on the market.
Every Torqeedo drive converts the available battery power to propulsive power more efficiently than any other outboard. This is very important for electric drives with limited battery capacity because it means more power and range.

Input power: Designates the power consumption. Often used as a performance indicator for electric outboards (current x voltage), is given in watts or HP. Does not take system loss into account.

Propulsive power: Performance indicator used by commercial shipping and Torqeedo (thrust x speed). The rating is expressed in HP or kW and takes all losses into account, including propeller loss, and clearly indicates the actual power delivered by the drive system for propulsion.

Overall efficiency levels of various outboards

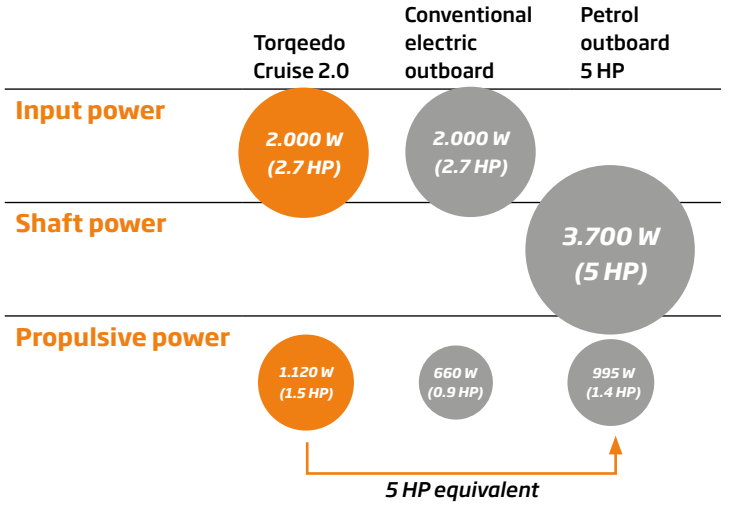


Comparing the power of electric and combustion outboards: Torqeedo's HP Equivalent

Electric motors can achieve the same propulsive power as combustion engines with significantly lower shaft power. The reason lies in the different torque curves of electric motors and gasoline or propane engines: While the torque curve of combustion engines features a prominent peak, with maximum torque available only in a limited working point, electric motors feature a much flatter torque curve, with ample torque available at any rotational speed. This characteristic allows them to run propellers with substantially higher efficiencies than combustion engines. Propeller efficiencies in the lower horsepower class can vary by a factor of 3 between combustion outboards and Torqeedo electric outboards.

To make the comparison easy for boaters who are used to shaft power ratings of petrol outboards, we always compare the actual propulsive power of our outboards versus petrol or propane outboards. On the following pages, a Torqeedo outboard specified as a "3 HP equivalent", provides the same propulsive power as a 3 HP combustion outboard – even though its shaft power and input power may be substantially lower.

In the Technical Data section of this catalog, we provide all information on input power, propulsive power, overall efficiency and comparable gasoline or propane outboards for your reference.



Designed for power

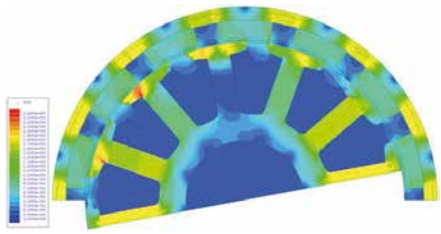
Inner strength – Torqeedo power train engineering

Torqeedo drives convert limited battery capacity into more propulsive power than any other outboards. This is very important for electric drive systems in particular as it means more power and greater range with the same battery capacity.

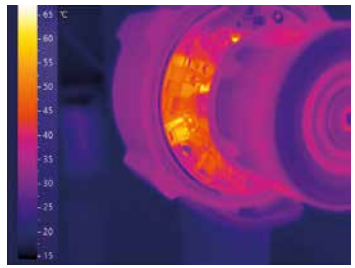
Superior propulsive power and overall efficiency don't just fall out of the sky. They come from inhouse development that uses the latest technologies in powertrain engineering and uncompromising optimisation of every component. We carefully match all components of the drive train for performance, focusing on tailored solutions and industrial engineering.

Efficiency and power – Torqeedo motor technology

Superior motor technology is at the heart of all Torqeedo drives. From the very beginning of the company, we have only constructed **brushless, electronically commutated motors with rare-earth magnets**. Motors and electronics are developed for ultimate efficiency over the entire RPM range and for superior power densities.
That is why our motors are typically lighter and smaller than other motors of the same power class.
Motor optimisation always depends on the application, which is why **Torqeedo motors are always tailored** in terms of form, motor speed and torque. Torqeedo motor design and the right choice of propeller makes it easier to cater to a wide range of requirements.
The torque requirements of a boat motor are significantly different from those of a land vehicle. While motors for land vehicles are optimised to provide maximum torque in the low load range for quick acceleration, the exact opposite applies to boat drive systems. Here it is all about moving a propeller as slowly and as powerfully as possible. Boat drives therefore need their maximum torque in the highest performance range. This, too, is the main reason why we rely exclusively on **in-house high-tech development** at Torqeedo.



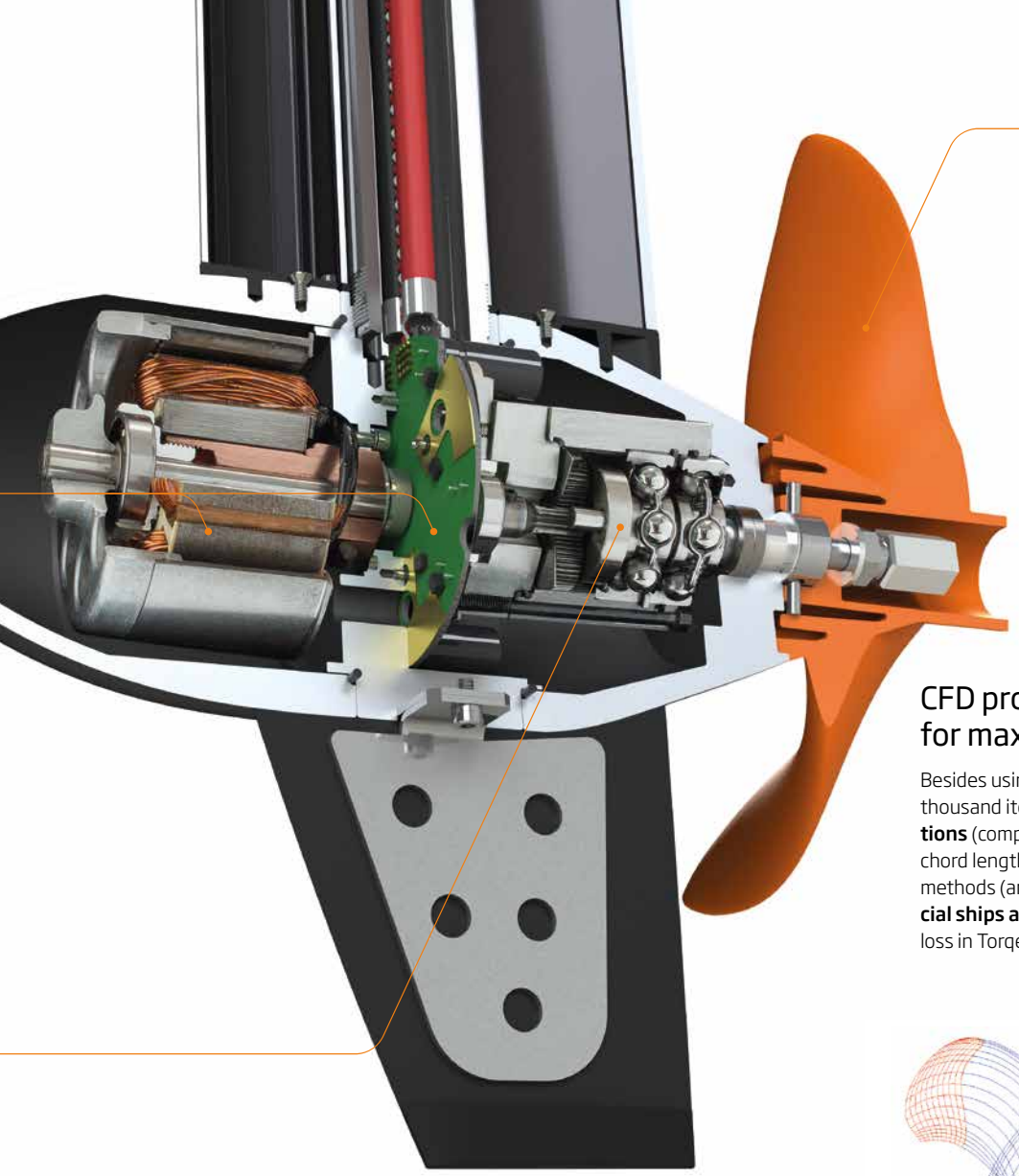
Simulation of magnetic field distribution for optimising the design of a motor (structure, magnet geometry, air gap, plate cross-section and rotor design)



Simulation of thermal load of the motor electronics

Carefully selected gears for optimum torque and speed

Propellers are at their most efficient when they are moved slowly but powerfully (high torque, low rotational speed). This is achieved by the use of **planetary gears** for minimum weight and volume. Torqeedo uses only the highest quality gears from German precision production. They are extremely efficient and have an impressive **service life of up to 50,000 hours**.

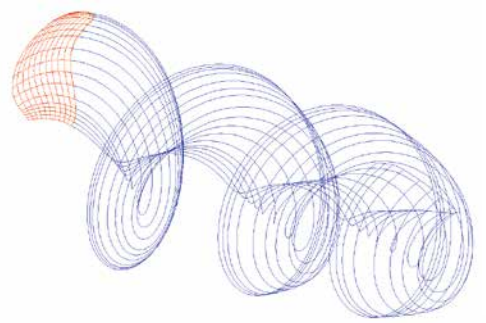


Conventional propeller optimisation – exploiting the outstanding torque characteristics of Torqeedo motors

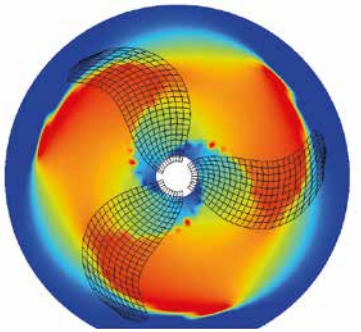
There are dramatic differences in propeller efficiencies. Poorly designed propellers may deliver only 20% efficiency while outstanding propellers deliver around 75%. There are three main characteristics of an efficient propeller: a large diameter, a high pitch and a slow rotation.
Only motors **with high torque** can drive efficient propellers. Torqeedo motors deliver high torque along their entire rpm range. All Torqeedo propellers are designed to exactly meet the demands of the application and to take full advantage of the **superior torque characteristics** of our motors.

CFD propeller calculations from commercial shipping for maximum efficiency

Besides using conventional optimisation methods, we perfect our propellers over several thousand iterations with the help of **multi-dimensional, fluid mechanic CFD calculations** (computational fluid dynamics). In this process, all propeller parameters – diameter, chord length, pitch, skew, rake, camber and thickness – are calculated using the same methods (and by the same experts) that also define the **the propeller form for commercial ships and submarines.** It is an elaborate but worthwhile method for cutting propeller loss in Torqeedo drive systems to a minimum.



Lattice structure used to calculate the individual characteristics of a custom-made Torqeedo VPVC propeller (variable pitch variable camber)



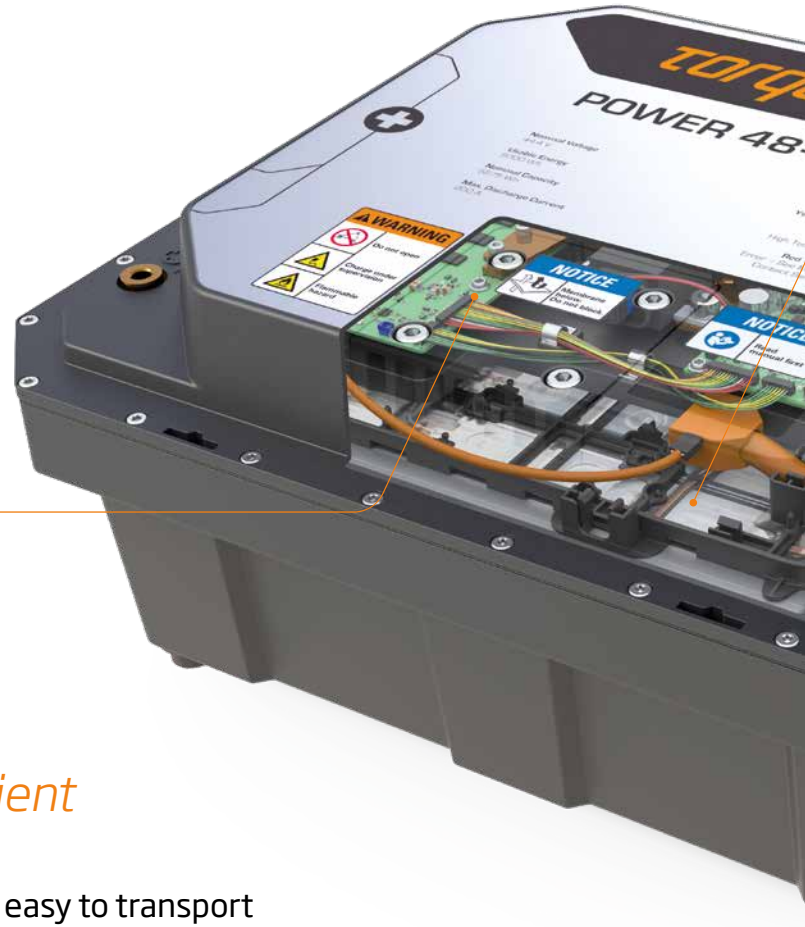
Profile of the calculated slipstream (red: high speeds; blue: low speeds)

Safe performance – designed down to the last detail for the most demanding use

Superior battery technology

Lithium-based batteries are the technology of choice for electric mobility applications. They store significantly more energy than all other batteries, they maintain a high current – a major advantage for electric drive systems – they do not lose their charging capacity, they supply power reliably even in the cold and have no memory effect. They also provide many more cycles than lead-based batteries.

Torqeedo has been a pioneer in the development of lithium batteries for marine applications for more than a decade. Since we make our batteries just a little bit better each year, we offer the most comprehensive and integrated protection and safety concept for lithium batteries on the market – coupled with performance and convenience.



Intelligent battery management system (BMS)

The BMS **monitors and protects** Torqeedo batteries against overcharging, overcurrent, deep discharge, short-circuit and overheating. The battery has comprehensive safety features, and each safety-relevant component is duplicated with a backup component should it fail. In addition to these safety features, the BMS safeguards the battery's life expectancy with balancing and deep-sleep functionality.

Convenient

Safe and easy to transport

Thanks to their **high energy density**, the volume and weight of lithium batteries are more than 70% lower than comparable AGM or lead-gel batteries. This makes our low-voltage batteries simple to handle and light to carry. On top of that, Torqeedo Power and Deep Blue batteries can be switched on and off, allowing them to be safely **transported and installed** and protecting them against unintentional discharge.

Powerful

High quality safety cells

Several hardware mechanisms in every single cell provide additional safety. Torqeedo only uses cells based on lithium (Li-NMC) sourced from the **clean, precision production processes** of reputable manufacturers. In the case of the new Power 48-5000, the modules are produced by BMW i.

Dependable and efficient

System communications

The battery electronics continuously communicate all the details of the battery status to the onboard computer.

Completely waterproof

Waterproof housing (IP67). While battery immersion should be avoided, all Torqeedo batteries are, without exception, completely waterproof. The waterproof characteristics of each battery are individually tested prior to delivery.
Waterproof connections. Whether connected or not, all cable connectors are completely waterproof to IP67.

Safety of lithium batteries

Besides performance, safety plays an important role for lithium batteries. In our view, five factors need to be considered in order to ensure that safe really means safe:

1. **Safe battery chemical engineering**, such as LiFePO (lithium iron phosphate) or LiNMC (lithium nickel manganese cobalt oxide). These are now widely used.

2. **Safe cell packaging:** Torqeedo uses only individually welded safety cells: either steel cylindrical or assembled into modules and equipped with multiple safety mechanisms. Other forms of packaging offer a lower standard of safety as they afford less effective protection against short circuiting within the cells.

3. **Clean, precision production processes** on the part of the cell manufacturers. Torqeedo only uses cells and modules sourced from the most reputable brands in the world.

4. **Battery management system (BMS) with redundant safety features:** unlike lead-based batteries, lithium batteries always need a BMS to perform balancing and safety functions. If electronic components of the BMS fail it can itself become a safety problem for the battery. That's why there is hardware backup for all safety-relevant components in Torqeedo batteries. Incidentally, this is also stipulated in the automotive industry, in aerospace and for medical technology.

5. **Waterproof to IP67 –** water in lithium batteries can lead to various problems such as corrosion of the BMS hardware or the creation of electrolytic gas. Lithium batteries on board a boat should, therefore, be waterproof.

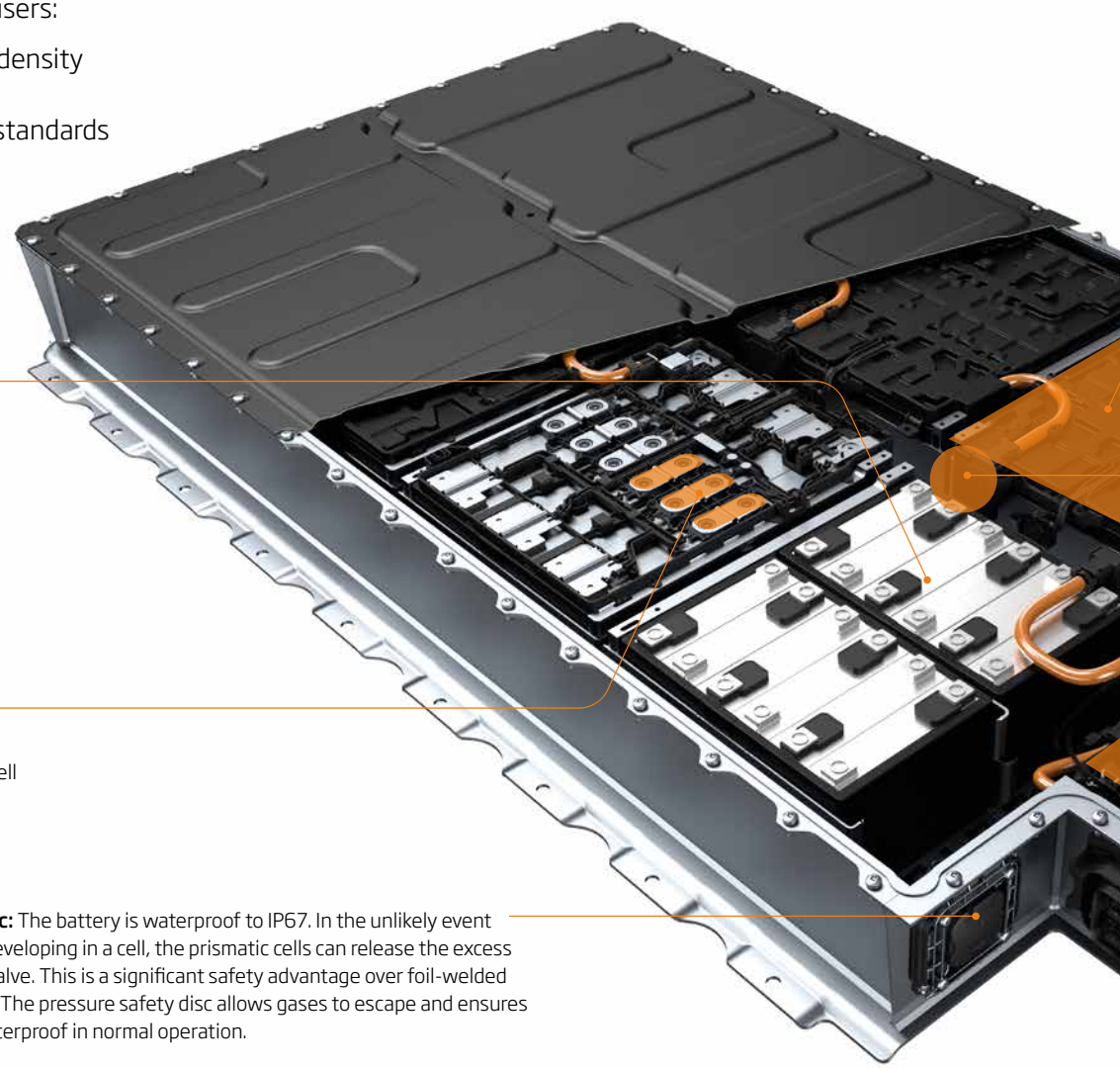
When it comes to high-capacity batteries, only the best is good enough

Torqeedo high-power drives with BMW i batteries

BMW i high-capacity batteries are now available for boats. This technology, proven in thousands of BMW's groundbreaking i3 automobiles, has been integrated into the Deep Blue system by Torqeedo. New for 2018 is the BMW i8 battery – ideal for boats where space is at a premium.

The benefits for users:

- Greater energy density
- Lower costs
- Highest safety standards

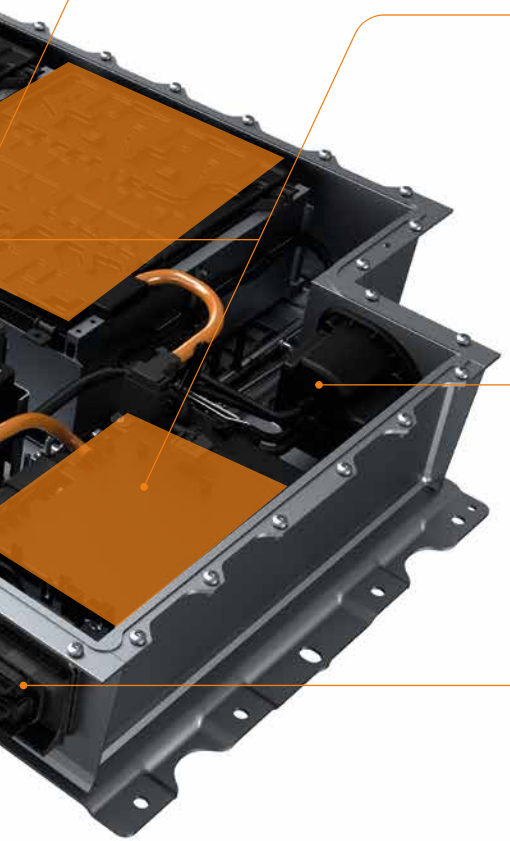


The latest generation of automotive battery cells
- Very high energy density
- Prismatic cell design allows efficient cooling, a compact form, even temperature distribution within the battery and an extremely rugged structure
- Robust protective aluminium housing with safety vent
- From the automated production process of Samsung SDI, a leading manufacturer of lithium battery cells

Laser-welded cell connections:
over a larger surface and therefore stronger and more powerful than conventional spot-welded cell connections.

Pressure safety disc: The battery is waterproof to IP67. In the unlikely event of excess pressure developing in a cell, the prismatic cells can release the excess pressure through a valve. This is a significant safety advantage over foil-welded cells and pouch cells. The pressure safety disc allows gases to escape and ensures the battery stays waterproof in normal operation.

Automated module production
- Prismatic cells have many advantages. However, they must be assembled extremely accurately in a very robust frame for a long service life. (Otherwise charging and discharging would, over time, lead to the cells expanding and collapsing very slightly and cause them to age prematurely.)
- The fully automated module production at BMW in Dingolfing has set the standard in high-precision and extremely robust battery modules
- The very rugged design is ideal for boat applications that place high demands on shock resistance



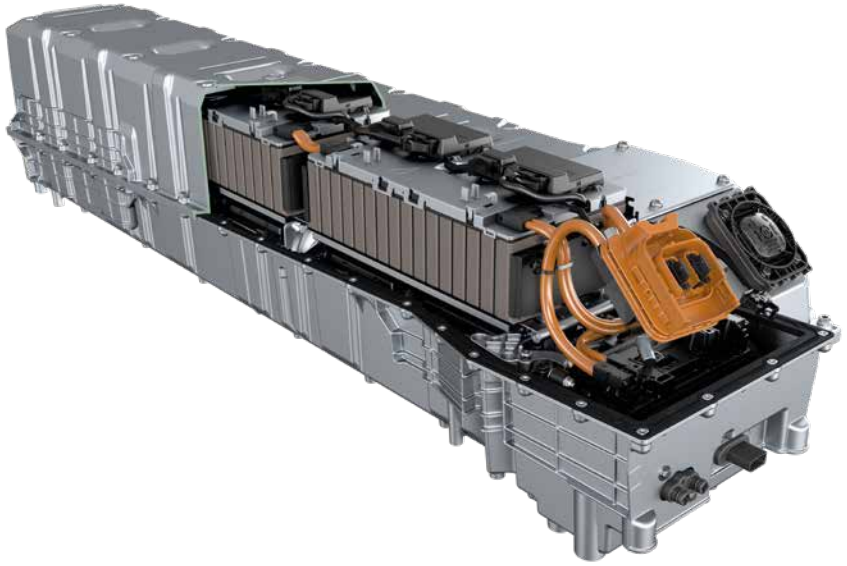
Battery management system (BMS) at module and battery levels
- State-of-the-art BMS technology
- Developed to ASIL C standards as used in the automotive industry for maximum safety
- Qualification and acceptance testing at a far higher level than is typical in the boating industry

Compressor cooling: Cools the battery to ensure high performance and a long service life even in high ambient and water temperatures – in all climate zones anywhere in the world

Power and data connections from the battery to the Deep Blue system

BMW i8 high-capacity battery

BMW high-capacity battery technology can now be used in boats with limited space. And, thanks to the special cell technology, active cooling is not required in many applications.

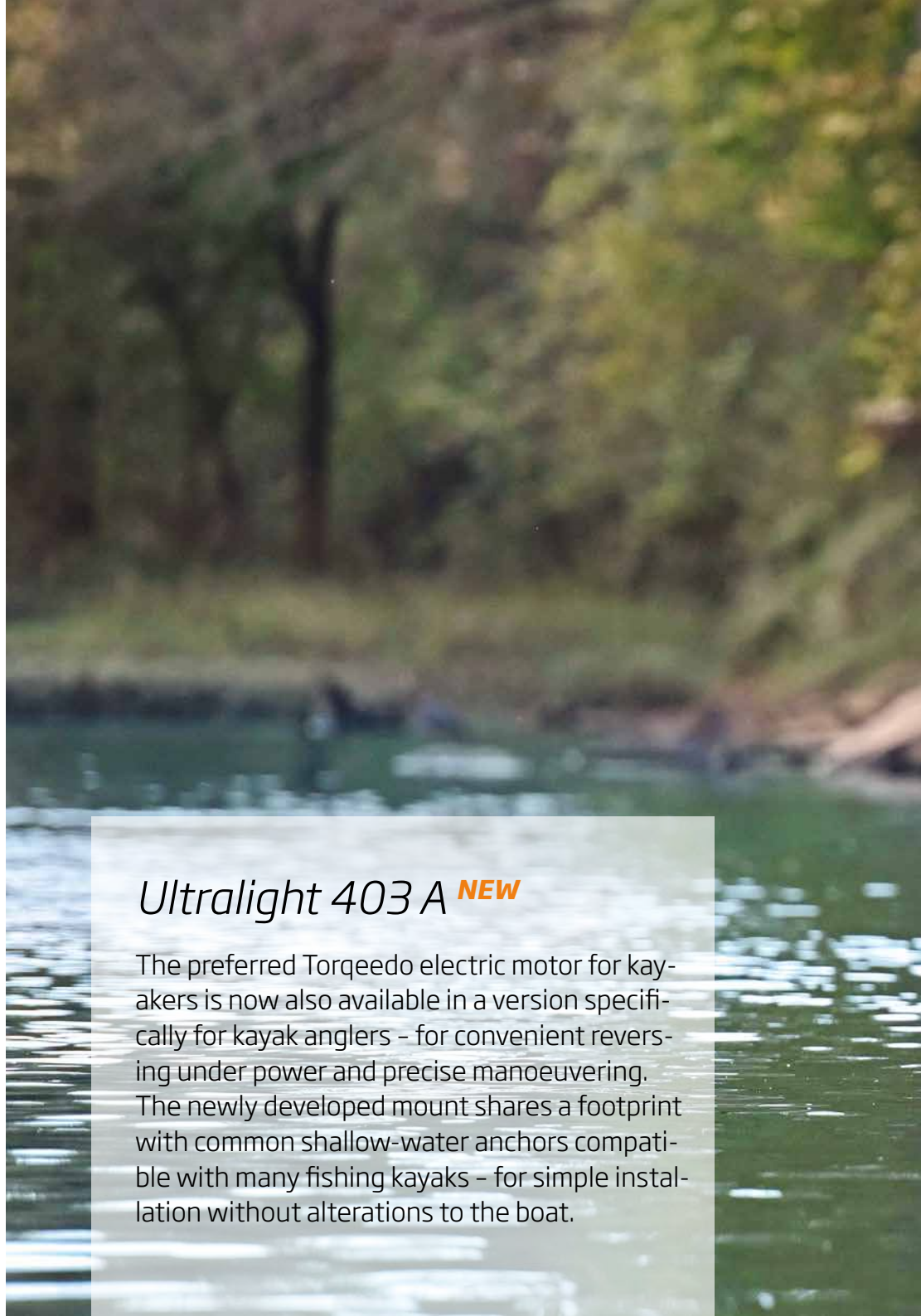


Ultralight 403 / 403 A NEW

The smallest drive system from Torqeedo. Perfect for kayaks and other extremely lightweight boats – and a range up to 100 km with the optional spare battery thanks to its high efficiency and powerful lithium batteries. The 403 models offer all the features of larger Torqeedo motors: real-time GPS, solar charging, fully waterproof and with a long service life. New for 2018: Ultralight 403 A with a new mount compatible with shallow-water anchor mounting assemblies available for most fishing kayaks.

- Fast: up to 10 km/h
- Only 8.9 kg total weight including battery
- Onboard computer with real-time display of remaining range, speed, charging status and much more
- Long-lasting lithium battery without memory effect with shorter charging time and USB adapter
- Universal ball-mount (Ultralight 403) is compatible with most kayaks
- Very easy to install, compatible with shallow-water anchor mounts (403 A)
- Safe, thanks to emergency magnetic kill switch that stops the motor if you capsize
- Waterproof to IP67
- 2-year limited warranty**

**For recreational use, from date of purchase



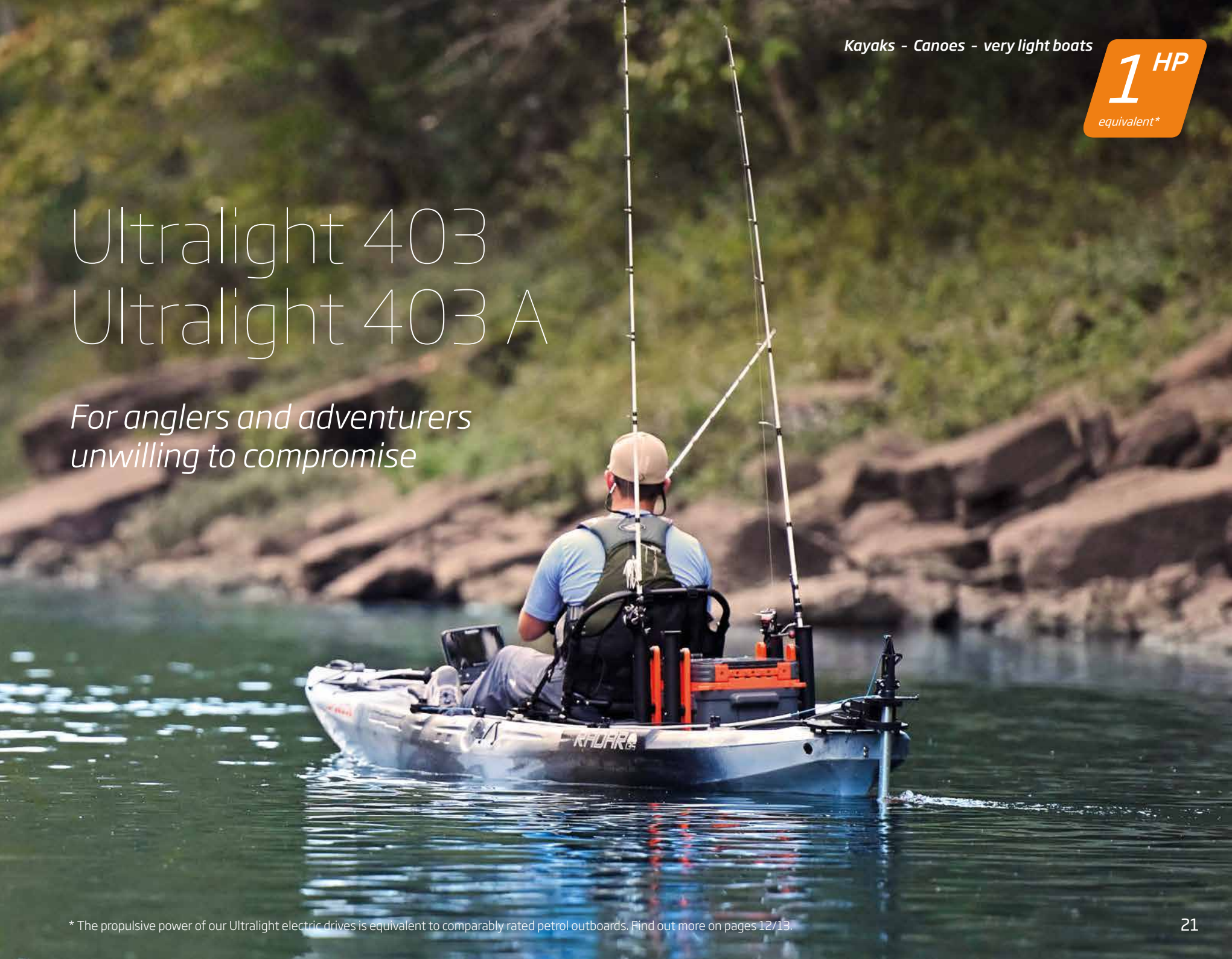
Ultralight 403 A NEW

The preferred Torqeedo electric motor for kayakers is now also available in a version specifically for kayak anglers – for convenient reversing under power and precise manoeuvering. The newly developed mount shares a footprint with common shallow-water anchors compatible with many fishing kayaks – for simple installation without alterations to the boat.

1 HP
equivalent*

Ultralight 403
Ultralight 403 A

For anglers and adventurers unwilling to compromise



* The propulsive power of our Ultralight electric drives is equivalent to comparably rated petrol outboards. Find out more on pages 12/13.

Ultralight 403 / 403 A NEW

Technical details

Very safe thanks to emergency magnetic kill switch that stops the motor when disconnected

Simple motor start at the press of a button

Precise manoeuvering even in reverse by means of the reverse lock, which prevents the motor from tilting up when in reverse

Simple installation: With the mounting included, the Ultralight 403 A can be mounted on many fishing kayaks

Ultralight 403 A

Steering /tilting /auto-kickup: Simple integration with the kayak's steering system

No alteration to the boat needed, thanks to use of the standardized (403 A) mounting points

Efficient propeller design for maximum speed

High-tech propulsion with maximum efficiency: Optimal torque characteristics ensure maximum efficiency at any speed. Greater performance and greater range than all other electric motors in this class – with the same battery capacity.

Long-lasting, high-performance lithium battery delivering 320 Wh (11 Ah at 29.6 V). Integrated real-time GPS and intelligent battery management system. Waterproof to IP67. USB charging port for an onboard light or charging mobile phone or camera. **Extra-large 915 Wh spare battery (option):** almost three times as much energy and greater range

Stepless electronic throttle with onboard computer display provides real-time information on battery charge status, speed over ground, input power and remaining range

Ultralight 403

Universal mounting: The Ultralight 403 can be mounted on just about any kayak with the mounting ball provided. There are special models available for kayaks from Hobie , Wilderness, Rotomod and Grabner available via the dealer network of the manufacturer.

PERFORMANCE: SPEED AND RANGE*

Ultralight 403 / 403 A with integrated battery (320 Wh / 29.6 V / 11 Ah)
Fishing kayak Hobie Mirage Revolution (4.1 m / 26.3 kg)

	Speed in km/h	Range in km	Running time in hh:mm
● ○ ○ Slow	4.2	35.2	08:20
● ● ○ Half throttle	6.0	25.0	04:10
● ● ● Full throttle	9.3	7.4	00:48

Ultralight 403 / 403 A with optional battery (915 Wh / 29.6 V / 31 Ah)
Fishing kayak Hobie Mirage Revolution (4.1 m / 26.3 kg)

	Speed in km/h	Range in km	Running time in hh:mm
● ○ ○ Slow	4.2	96.0	24:00
● ● ○ Half throttle	6.0	71.0	11:50
● ● ● Full throttle	9.3	21.0	02:20

Ultralight 403 / 403 A with optional battery (915 Wh / 29.6 V / 31 Ah)
Touring kayak Prijon Prilite T470 (4.7 m / 23 kg)

	Speed in km/h	Range in km	Running time in hh:mm
● ○ ○ Slow	4.2	120.0	28:30
● ● ○ Half throttle	6.2	74.0	11:54
● ● ● Full throttle	9.8	22.5	02:20

* Depends on type of boat, load, propeller and conditions. Speed and range indications do not represent a legal guarantee.

Does the battery need to be fully discharged before I can recharge it?
No, because lithium batteries have no memory effect. You can fully recharge the battery after each trip regardless of the charge level.

How long does the battery take to charge?
When the battery is completely discharged it takes approx. 5 hours to fully recharge it. A spare battery means that you are mobile again immediately. You can charge your battery with the Sunfold 50 solar charger during your journey.

How long does a lithium battery last?
When used recreationally, the service life of our lithium batteries is virtually independent of the number of times it is charged. Generally speaking, an average capacity loss of 4% a year can be assumed. Ageing will, however, accelerate if the battery is permanently exposed to high temperatures. You can use your battery in high temperatures, but take the battery out of the sun and store it in a cool place when not in use. Your battery must be returned to a Torqeedo Service Centre for service 8 years after manufacture.

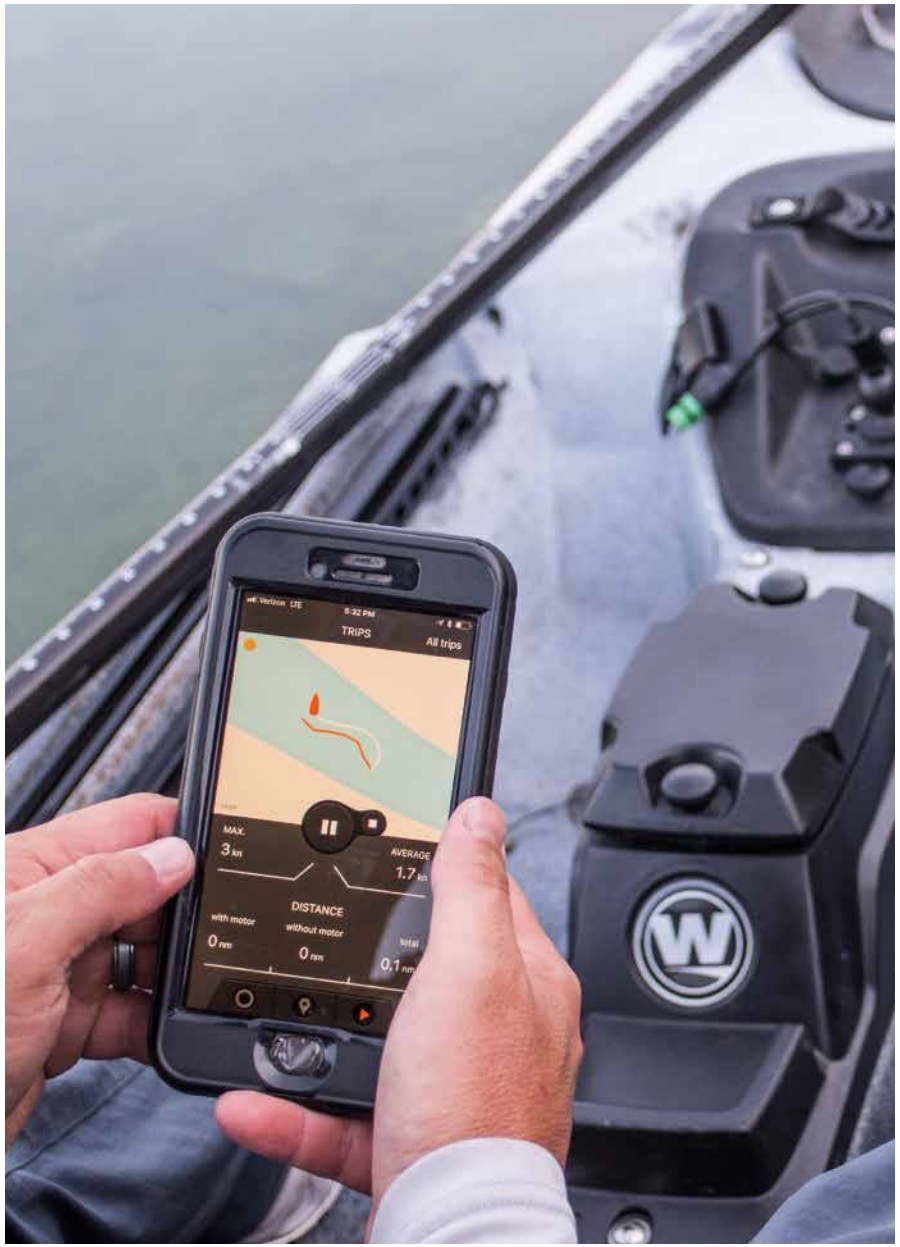
What happens if I capsize?
The Ultralight is fitted with a sensor that monitors the position of the motor. If the kayak capsizes or the motor tips up, the drive is automatically switched off. In addition, the emergency magnetic kill switch always must be worn around the wrist or attached to your life jacket. This will stop the motor immediately if required.

More informations: www.torqeedo.com/ultralight

Ultralight 403 / 403 A **NEW**

Accessories & ordering information

Navigation



The upgrade for the onboard computer on your Bluetooth smartphone. With convenient navigational functions in real time. Now in the improved version 1.5, compatible with current smartphones.

TorqTrac

Bluetooth® transmitter module for a wireless connection between the onboard computer and a smartphone (system requirement: Bluetooth® 4.0 LE low energy). The associated app for Apple and Android can be downloaded free from your vendor's App Store. Microsoft apps are currently not supported.

Part no. 1924-00

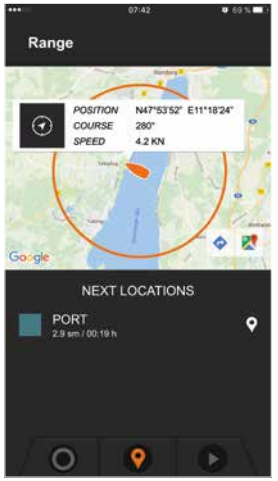
- + Extensive navigation functions
- + Extremely easy to use
- + Wireless Bluetooth communication with your mobile phone
- + 2-year limited warranty*

*For recreational use, from date of purchase

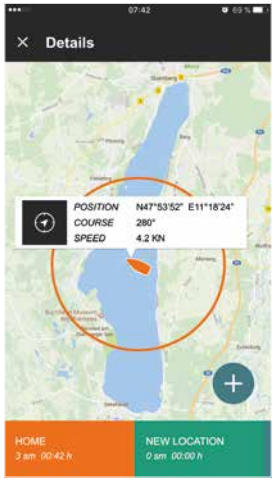
ANDROID APP ON Google play

Available on the App Store

Clear: All the values are easy to read on your smartphone display, even at night.



Precise: You always know your exact position and the remaining range thanks to GPS positioning data updated in real time.



Convenient: Use waypoints to estimate your time of arrival, zoom into the map and save your favourite places.

Power supply

Spare batteries

Extend your range with a second battery on board.
The battery supplied as standard has a capacity of 320 Wh.

Part no. 1416-00 (320 Wh)
Part no. 1417-00 (915 Wh)

Sunfold 50

The plug & play solution for solar-charging the Ultralight 403 / 403 A: This light solar charging panel delivers lots of solar energy and can be easily folded for storage.

Part no. 1132-00
(for all Ultralight models from 2016)

Ordering information

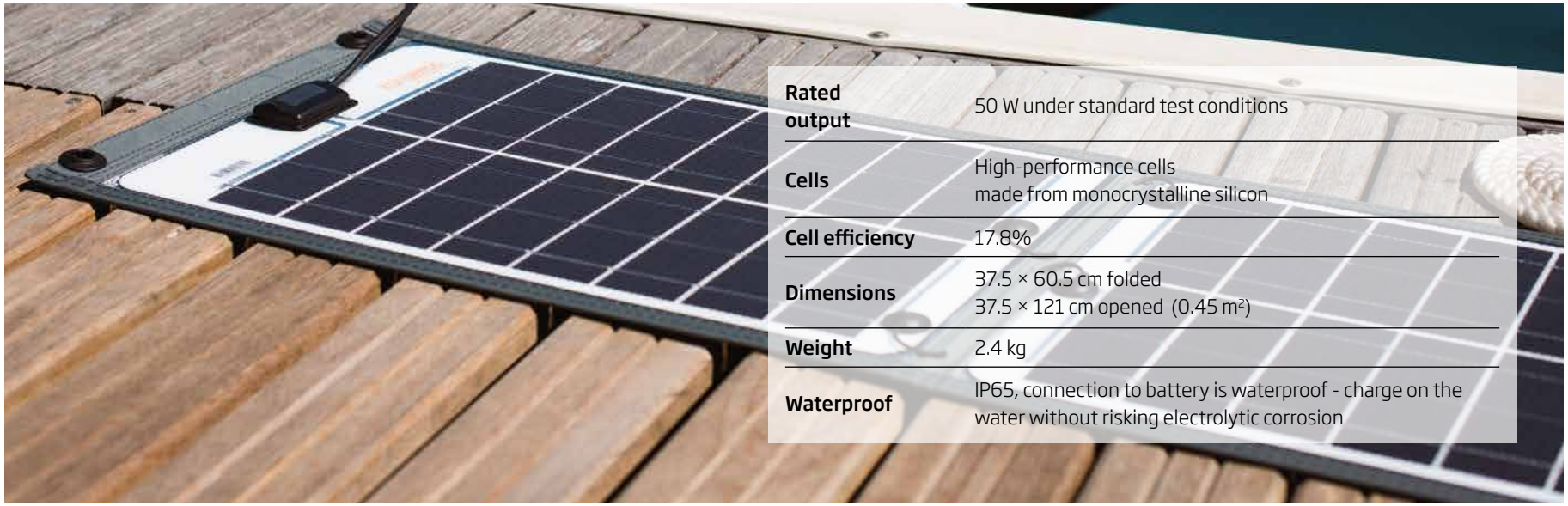
Ultralight 403 / 403 A
Ultralight outboard motor (1 HP)*

	Part no.
Ultralight 403	1404-00
Ultralight 403 A	1405-00

Includes:

- High-performance lithium battery (320 Wh) with integrated GPS and USB adapter
- Electronic throttle with onboard computer display
- Ball-joint universal mounting (403), new mount for fishing kayaks (403 A)
- Charger
- Emergency magnetic kill switch

Additional accessories and spares	Part no.
Spare battery Ultralight 403 (320 Wh)	1416-00
Spare battery Ultralight 403 (915 Wh)	1417-00
Spare charger 90 W	1133-00
Motor cable extension 2 m	1920-00
Remote throttle cable extension 1.5 m	1921-00
Remote throttle cable extension 5m	1922-00
Spare propeller v10/p350	1912-00



Rated output	50 W under standard test conditions
Cells	High-performance cells made from monocrystalline silicon
Cell efficiency	17.8%
Dimensions	37.5 × 60.5 cm folded 37.5 × 121 cm opened (0.45 m^2)
Weight	2.4 kg
Waterproof	IP65, connection to battery is waterproof - charge on the water without risking electrolytic corrosion

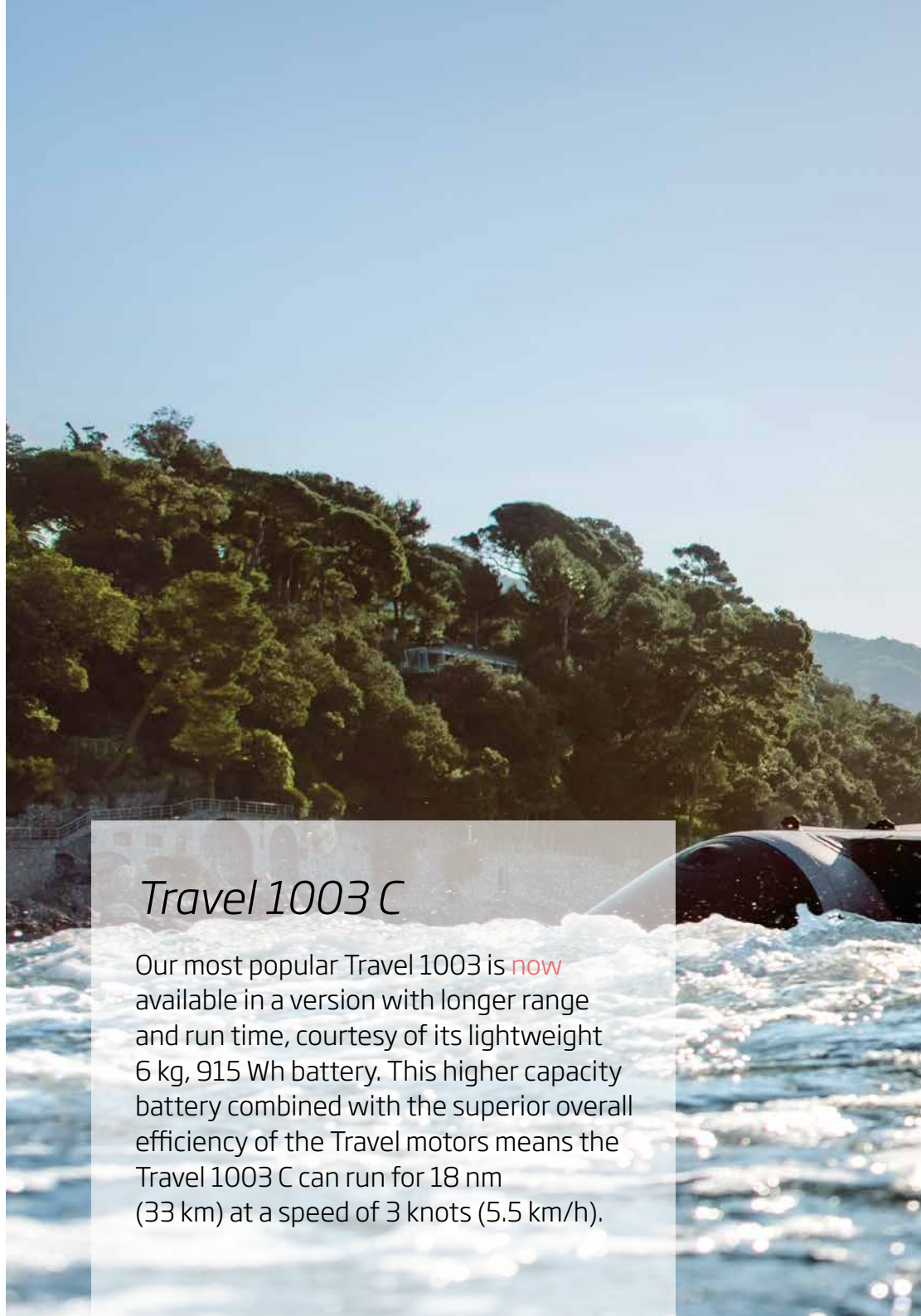
* The propulsive power of our Ultralight electric motors equivalent to comparably rated petrol outboards. Find out more on pages 12/13.

Travel 503 / 1003 / 1003 C

The clean alternative to a small petrol outboard: You can go wherever you wish with the Torqeedo Travel – with no exhaust or fuel. With the power and range of a 3 HP petrol motor and all the advantages of an electric drive system from Torqeedo: GPS in real time, USB adapter and a high-performance battery are only a few of the many extras and convenient features.
Travel 1003 C offers 73% higher battery capacity – extending your range and runtime.

- + As powerful as a 1.5 or 3 HP petrol outboard
- + Long-lasting high-performance lithium battery
- + Integrated onboard computer with real-time GPS and display of remaining range, speed, charge status and many other functions
- + Very light, weighing 8.9 kg without a battery and only 14.4 kg with one (Travel 1003 S)
- + USB adapter for an onboard lamp or for charging a mobile phone or camera
- + Extremely easy handling: tool-free mounting, starts at the press of a button and battery swap within seconds
- + Waterproof to IP67
- + Extra-powerful spare battery (option): 73% more energy and greater range for Travel 1003
- + 2-year limited warranty**

** For recreational use, from date of purchase



Travel 1003 C

Our most popular Travel 1003 is now available in a version with longer range and run time, courtesy of its lightweight 6 kg, 915 Wh battery. This higher capacity battery combined with the superior overall efficiency of the Travel motors means the Travel 1003 C can run for 18 nm (33 km) at a speed of 3 knots (5.5 km/h).

1.5 HP equivalent*

3 HP equivalent*

Travel 503
Travel 1003
Travel 1003 C

Clean and convenient – the alternative to the small petrol outboard

* The propulsive power of our Travel electric motors is equivalent to comparably rated petrol outboards. Find out more on pages 12/13.

Travel 503 / 1003 / 1003 C

Technical details

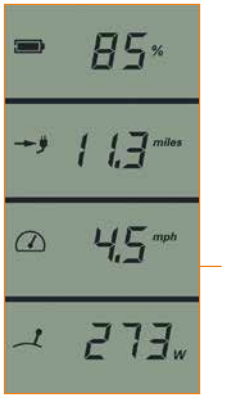
Simple motor start at the press of a button

Clearly audible alarm signal reports low battery charge

Long-lasting, high-performance lithium battery with 320 Wh (11 Ah at 29.6 V), 530 Wh (18 Ah at 29.6 V) or 915 Wh (31 Ah at 29.6 V). Intelligent battery management system, waterproof to IP67.

Very safe thanks to emergency magnetic kill switch that stops the motor when disconnected

Integrated real-time GPS.



Stepless speed control in the tiller, option to connect an electronic throttle

USB adapter

Onboard computer display in the tiller provides real-time information on battery charge status, speed, remaining range and input power

Connection for solar charger while anchored or underway

Simple mounting: You can easily attach the Travel to the stern of your boat using the integrated mounting bracket; no special tools are required.

Available in two shaft lengths (62.5 and 75 cm) for every purpose

Efficient propeller design for greater propulsive power

High-tech drive system with maximum efficiency: The optimised drive shaft ensures maximum efficiency at any speed – greater performance and greater range than all other electric motors in this class with the same battery capacity.

Ideal motor cooling in the pylon ensures maximum performance

PERFORMANCE: SPEED AND RANGE**

Travel 503 with integrated 320 Wh battery (29.6 V / 11 Ah)
Sailboats up to 750 kg

	Speed in knots (km/h)	Range in nm (km)	Running time in hh:mm
● ○ ○ Slow	approx. 2.0 (3.7)	approx. 12.8 (23.7)	06:20
● ● ○ Half throttle	approx. 3.0 (5.5)	approx. 6.4 (11.9)	02:08
● ● ● Full throttle	approx. 4.0 (7.4)	approx. 2.8 (5.2)	00:42

Travel 1003 with integrated 530 Wh battery (29.6 V / 18 Ah)
Inflatable, dinghy, daysailer up to 1.5 tons

	Speed in knots (km/h)	Range in nm (km)	Running time in hh:mm
● ○ ○ Slow	approx. 2.0 (3.7)	approx. 20.0 (37.0)	10:30
● ● ○ Half throttle	approx. 3.0 (5.5)	approx. 10.5 (19.4)	03:30
● ● ● Full throttle	approx. 5.0 (9.2)	approx. 2.8 (5.2)	00:35

Travel 1003 C with integrated 915 Wh battery (29.6 V / 31 Ah)
Inflatable, dinghy, daysailer up to 1.5 tons

	Speed in knots (km/h)	Range in nm (km)	Running time in hh:mm
● ○ ○ Slow	approx. 2.0 (3.7)	approx. 35.0 (64.8)	17:30
● ● ○ Half throttle	approx. 3.0 (5.5)	approx. 18.0 (33.3)	06:00
● ● ● Full throttle	approx. 5.0 (9.2)	approx. 4.6 (8.4)	00:55

* The propulsive power of our Travel electric motors is equivalent to comparably rated petrol outboards. Find out more on pages 12/13.
** Depends on type of boat, load and conditions. Speed and range indications do not represent a legal guarantee.

Which Travel for which boat?
All three models are suitable for inflatables and other small boats. For sailboats up to 750 kg we recommend the Travel 503. The Travel 1003 easily propels up to 1.5 tons. Both models provide similar performance on the same boat at the same speed. However, the Travel 1003 has a higher maximum power and offers over 60% more battery capacity, providing longer range.

Does the battery need to be fully discharged before I can recharge it?
No, because lithium batteries have no memory effect - you can fully recharge the battery after each trip regardless of the charge level.

How long does the battery take to charge?
That depends on how you charge the battery. Using the charger supplied, it takes about five hours for the Travel 503 and about seven hours for the Travel 1003 until the battery is fully recharged. You can also recharge the battery direct from the 12 V onboard power system (accessory required). A full charge with the Sunfold 50 (accessory), which can also charge while travelling, takes around 10 hours.

How long does a lithium battery last?
When used recreationally, the service life of our lithium batteries is virtually independent of the number of times it is charged. Generally speaking, an average capacity loss of 4% a year can be assumed. Ageing will, however, accelerate if the battery is permanently exposed to high temperatures. You can use your battery in high temperatures, but take it out of the sun and store it in a cool place when not in use. Your battery must be returned to a Torqeedo Service Centre for service 8 years after manufacture.

Will high temperatures damage the battery?
Lithium batteries will age quicker if they are exposed to high ambiant temperatures. For convenient use in high temperature environments, we've integrated a temperature protection mode. Motor power is automatically reduced before the battery gets too hot until the temperature returns to a level where there is no risk of damage to the battery. This function is represented in the display with a thermometer.

What safety precautions need to be observed?
The emergency magnetic kill switch must always be worn around the wrist or attached to your life jacket. This will quickly stop the motor if you should fall out of the boat or capsize. All components are IP67 waterproof so brief immersion will not damage the outboard.

You can find more information about this product at: www.torqeedo.com/travel

Travel 503 / 1003 / 1003 C

Accessories & ordering information

Protection & transport

Travel bags

Weather-resistant carry bags in the Torqeedo style. In silver-grey with orange details. Black lining with padding protects your Travel motor – including tiller, battery and accessories. With functional details and practical carrying handles.

Part no. 1925-00 (2-piece)

Travel battery bag

Additional carry bag for a spare battery. With adjustable, removable shoulder strap and zip fasteners in orange.

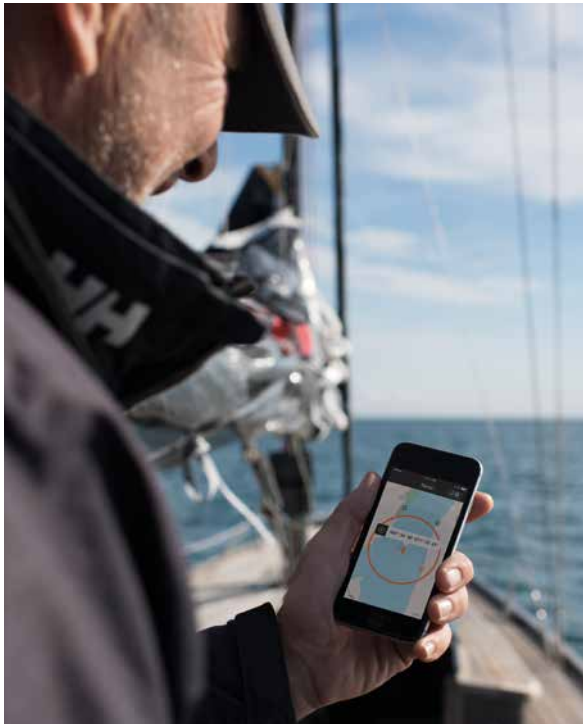
Part no. 1926-00

TorqTrac

Bluetooth® transmitter module for a wireless connection between the onboard computer and a smartphone (system requirement: Bluetooth® 4.0 LE low energy). The associated app for Apple and Android can be downloaded free from your vendor's App Store. Microsoft apps are currently not supported.

More information on page 42

Part no. 1924-00



ANDROID APP ON Google play

Available on the App Store

Navigation

Protective cover

Protect the motor cables from dirt, salt and intense sunlight.

Part no. 1931-00

Spare battery

Extend your range with a second battery on board. Weight: only 6 kg.

Part no. 1148-00 (915 Wh)
Part no. 1147-00 (530 Wh)

Power supply & operation

Electronic throttle

Instead of using the tiller, you can control your Travel motor with the throttle located at 1.5 or 5 metres away. It comes with onboard computer display, stepless speed control and two different lengths of data cable.

Part no. 1918-00

Sunfold 50

This lightweight solar panel delivers lots of clean solar energy and can be easily folded for storage. Suitable for all Travel models from 2015.

Part no. 1132-00
(technical details on page 25)

Ordering information

Travel 503 / 1003 (C) High-tech outboard (Travel 503: 1.5 HP, Travel 1003 (C): 3 HP)*

	Part no.
Travel 503 S	1140-00
Travel 503 L	1141-00
Travel 1003 S	1142-00
Travel 1003 L	1143-00
Travel 1003 CS	1149-00
Travel 1003 CL	1150-00

Includes:

- High-performance lithium battery (Travel 503: 320 Wh / Travel 1003: 530 Wh / Travel 1003 C: 915 Wh) with integrated GPS and USB adapter
- Onboard computer display in the tiller
- Emergency magnetic kill switch
- Charger

Additional accessories and spares	Part no.
Spare battery 915 Wh	1148-00
Spare battery 530 Wh	1147-00
Spare charger 90 W	1133-00
Motor cable extension	1920-00
Remote throttle cable extension 1.5 m	1921-00
Remote throttle cable extension 5m	1922-00
12/24 V charger cable	1128-00
Spare propeller v9/p790 (2-blade, for Travel 503 / 1003)	1917-00
Spare propeller v8/p350 (for Travel 503 until production end 2014)	1901-00
Long tiller arm (60 cm)	1919-00

Cruise outboards / Cruise pods

Our Cruise series stands for smooth, powerful performance. They are ideally equipped to meet the challenges of daily use and they feature all the advantages of a Torqeedo high-tech drive system – ideal for motor boats, dinghies, sailboats and demanding commercial applications.
With Torqeedo's Cruise pod drives, electric motor systems are a true alternative to inboard diesels. With the new Cruise 10.0 FP Saildrive Mount, sailing yachts can be converted to a powerful and extremely lightweight electrical propulsion system.

- More range and power than any other electric 48 volt outboard
- Minimum weight with maximum performance
- Onboard computer with GPS
- Extra robust design
- Protected from corrosion, even in saltwater
- Operates with lithium or AGM/lead-gel batteries
- Waterproof to IP67
- 2-year limited warranty**

**For recreational use, from date of purchase

Motorboats - sailboats up to 10 tons - commercial users - dinghies (Cruise outboards)

5 HP equivalent*

8 HP equivalent*

20 HP equivalent*

Cruise Outboards & Cruise Pod Drives

Power, endurance and convenience without compromise for leisure and commercial use

* The propulsive power of our Cruise electric drives is equivalent to comparably rated petrol outboards. Find out more on pages 12/13.

Cruise outboards

Technical details

All models have a GPS onboard computer and display in the tiller or electronic throttle with real-time display of speed and input power – and the exact battery status and remaining range when used in combination with the lithium batteries Power 26-104 or Power 48-5000.

Simple motor start at the press of a button

Housing and all cable connections **waterproof to IP67**

Simple mounting:
You can easily attach the Cruise outboards to the stern of your boat using the integrated mounting bracket; no special tools are required.

Available in two shaft lengths: 62.7 and 74.6 cm

Extra-robust design, with lubricant-free polymer plain bearing. Protect against damage from debris – wear-resistant and maintenance-free

Stable pylon made from **highest-grade saltwater-proof aluminium** and with an extra-reinforced fin, suitable for the toughest conditions

Optimised propeller design for a choice between more thrust or more speed

Available with tiller or electronic throttle:

Cruise 2.0 R/T

5 HP equivalent*

Available with tiller or electronic throttle:

Cruise 4.0 R/T

8 HP equivalent*

The flagship of the Cruise series:
The impressive Cruise 10.0 R offers an set of technical data. The outboard provides a range of up to 30 km at a speed of 30 km/h.

12 kW peak output and 10 kW continuous output for powerful propulsion

Electric tilting device

Cruise 10.0 R

20 HP equivalent*

PERFORMANCE: SPEED AND RANGE**

Cruise 2.0 with 1 x Power 26-104 (26 V, 2700 Wh, battery weight 24 kg)
Motorboats and sailboats up to 10 tons

	Speed in knots (km/h)	Range in nm (km)	Running time in hh:mm
● ● ● Slow	approx. 2.7 (5.0)	approx. 16.0 (30.0)	06:00
● ● ● Full throttle	approx. 6.0 (11.0)	approx. 8.0 (15.0)	01:20

Cruise 4.0 with 1 x Power 48-5000 (44.4 V, 5000 Wh, battery weight 35 kg)
Motorboats and sailboats up to 10 tons

Speed in knots (km/h)	Range in nm (km)	Running time in hh:mm
approx. 2.7 (5.0)	approx. 27.0 (50.0)	10:00
approx. 7.0 (13.0)	approx. 9.0 (16.0)	01:15

Cruise 10.0 with 2 x Power 48-5000 (44.4 V, 2 x 5000 Wh, battery weight 70 kg)
Motorboats and sailboats up to 10 tons

Speed in knots (km/h)	Range in nm (km)	Running time in hh:mm
approx. 4.2 (7.8)	approx. 32.0 (60.0)	07:40
approx. 14.0 (26.5)	approx. 14.0 (26.5)	01:00

* The propulsive power of our Cruise electric motors is equivalent to comparably rated petrol outboards. Find out more on pages 12/13.
** Depends on type of boat, load, propeller and conditions. Speed and range indications do not represent a legal guarantee.
*** Planing with Cruise: light boats can reach planing speeds up to 15 knots (28 km/h).

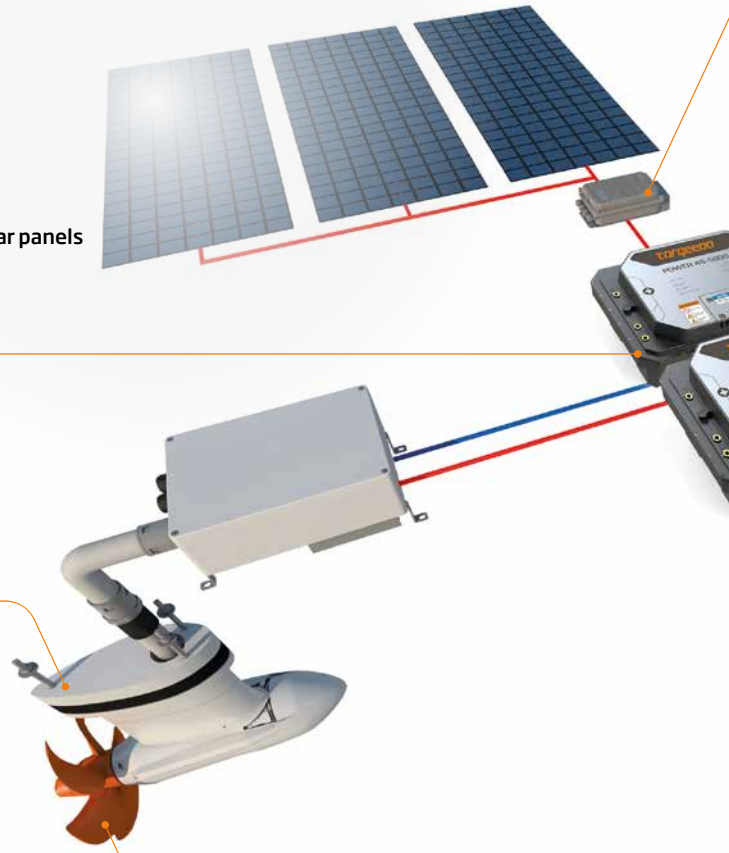
More information on page 39

Cruise Pod propulsion systems

The system in brief

A compelling system, created from first-class components

The motor unit, proven successful in thousands of outboards, is just one component of an integrated system that offers superior performance and convenience. It is complemented by Torqeedo's own lithium batteries, developed to work flawlessly with our motors, and by our electronic throttles. It also features a state-of-the-art user interface.
The system can be charged from shore power, from solar and from a generator. It also creates its own energy acting as a hydro-generator while sailing. Torqeedo's Cruise pod systems are available for sailboats from 25 to 40 ft.



Solar panels

High-performance lithium batteries, designed specifically to work with Torqeedo propulsion systems. 5-stage safety concept, see battery details starting on p. 48

Motor: lightweight, efficient, reliable

- Superior performance
- Proven successful in thousands of applications
- Extremely lightweight (8 HP equivalent weighs a mere 16 kg)
- Available in power equivalent to 5 HP, 8 HP, 20 HP combustion engine outboards

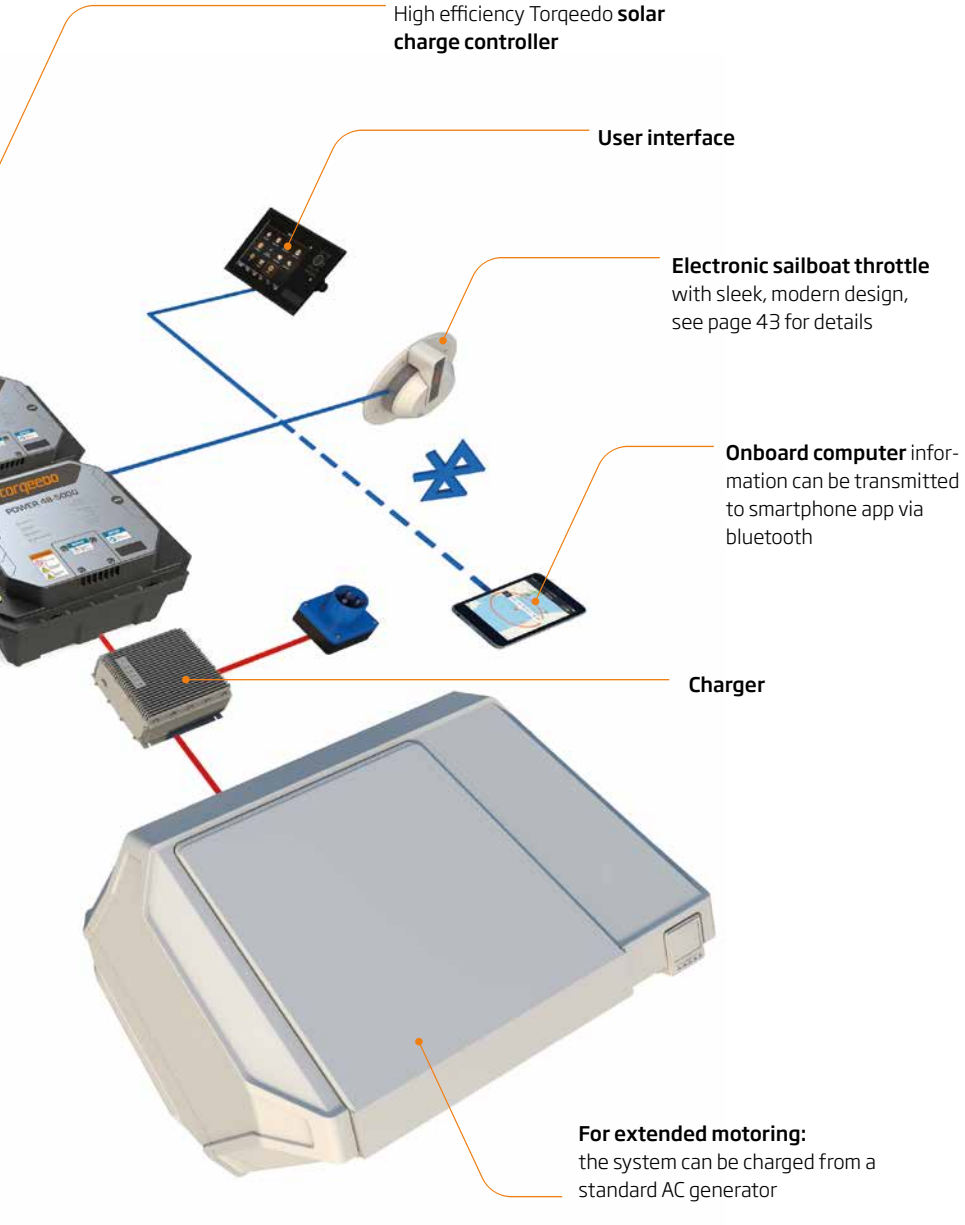
Motor can serve as a **hydrogenerator**. Under sail, the system generates power to recharge the batteries.

DAME OVERALL WINNER 2016

BoatingIndustry TOP PRODUCTS 2017

MIBS 2017 INNOVATION AWARDS WINNER

SAIL 2017 PITTMAN INNOVATION AWARDS



Rendering illustrative only.
Custom system configurations may vary.

How does a pod motor impact flow resistance while sailing?

What is the impact of a pod motor on the performance of a sailboat? Since efficiency is an important principle at Torqeedo, even while a motor is not in use, we have calculated the flow resistance of a 30' Dehler yacht with and without a pod motor.
The results: The impact of a Torqeedo Cruise 2.0 or 4.0 Pod motor on a sailboat's performance is minimal, resulting in a decrease of less than 0.04 knots speed – compared to having no motor at all.

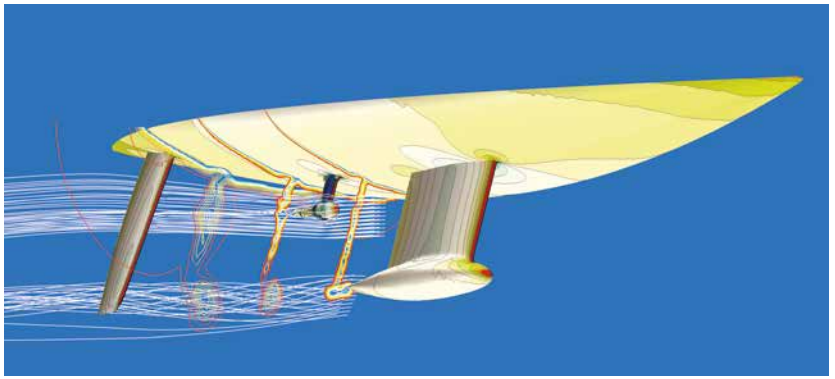
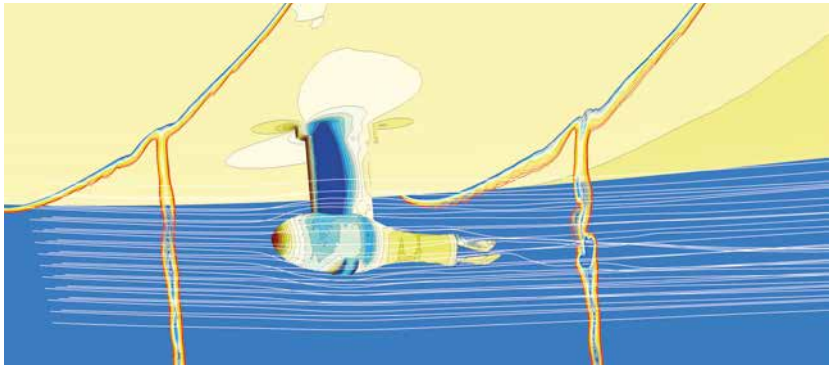


Illustration of flow with listing and windward drift from ahead



Water flow around a Torqeedo pod motor

Cruise pod drives

Technical details

Stable pylon made from highest-grade saltwater-proof aluminium

Extra robust design protects against damage from debris – wear-resistant and maintenance-free

Maximum efficiency for greater performance and range

All models with **GPS onboard computer and display**: real-time display of speed and input power – and also the exact battery status and remaining range when used in combination with the Power 26-104 lithium battery

Connection to TorqTrac: the premium onboard computer on your smartphone

Folding propellers available as an option for all models

Cruise 2.0 FP — 5 HP equivalent*

Cruise 4.0 FP — 8 HP equivalent*

Cruise 10.0 FP — 20 HP equivalent*

PERFORMANCE: SPEED AND RANGE**

Cruise 2.0 FP with 1 x Power 26-104 (26 V, 2700 Wh, battery weight 24 kg)
Sailboats up to 3 tons

	Speed in knots (km/h)	Range in nm (km)	Running time in hh:mm
●○○ Slow	approx. 2.7 (5.0)	approx. 16.0 (30.0)	06:00
●●● Full throttle	approx. 6.0 (11.0)	approx. 8.0 (15.0)	01:20

Cruise 4.0 FP with 1 x Power 48-5000 (44.4 V, 5000 Wh, battery weight 35 kg)
Sailboats up to 4 tons

	Speed in knots (km/h)	Range in nm (km)	Running time in hh:mm
●○○ Slow	approx. 2.7 (5.0)	approx. 27.0 (50.0)	10:00
●●● Full throttle	approx. 6.0 (11.0)	approx. 7.5 (13.5)	01:15

Cruise 10.0 FP with 2 x Power 48-5000 (44.4 V, 2 x 5000 Wh, battery weight 70 kg)
Sailboats up to 10 tons

	Speed in knots (km/h)	Range in nm (km)	Running time in hh:mm
●○○ Slow	approx. 3.0 (5.5)	approx. 30.0 (55.0)	10:00
●●● Full throttle	approx. 7.0 (13.0)	approx. 7.0 (13.0)	01:00

* The propulsive power of our Cruise electric pod motors is equivalent to comparably rated petrol outboards. Find out more on pages 12/13.
** Depends on type of boat, load, propeller and conditions. Speed and range indications do not represent a legal guarantee.

What type of battery supply does the Cruise need?
Cruise motors can be operated with modern lithium batteries or with conventional AGM or lead-gel cell batteries. The batteries developed for the Cruise, Power 48-5000 and Power 26-104, offer a number of advantages. AGM or lead-gel batteries are less expensive to buy but provide only limited functionality for the Cruise and a shorter service life.

Is the onboard computer compatible with lead batteries?
Yes, but with the with the limitation that lead batteries do not have a battery management system supplying important information. The charge status display and the remaining range are based on derived estimates of battery information that is entered when the battery is first installed.

What advantages do the lithium batteries Power 48-5000 and Power 26-104 offer for the Cruise?
A lithium battery provides significantly greater performance with lower weight than conventional lead batteries. Even under load, lithium batteries have less internal resistance and the existing capacity can be utilized almost completely, in contrast to lead-acid batteries. And, a lighter boat extends your range and boosts your speed. The integrated battery electronics of the Power 48-5000 and the Power 26-104 are designed to communicate with the onboard computer of the Cruise, providing remaining range and capacity in real time.

What requirements must my boat meet for twin motors – the Twin Cruise?
A Twin Cruise motor system consists of two Cruise models with remote throttle control and the Twin Cruise extension set, which contains a dual throttle and tie bar. The tie bar is used to connect the two Cruise outboards to the same steering mechanism. The standard Twin Cruise mounting assumes a transom width of at least 76 cm.

You can find more information about this product at:
www.torqeedo.com/cruise

Cruise pod drives

Special models

Cruise 10.0 FP Saildrive Mount **NEW**

The new Cruise FP Saildrive Mount makes installing a lightweight electric pod drive easier than ever by using the existing saildrive mounting points.
The extra-sturdy aluminium pylon is corrosion-resistant and low maintenance, with a long service life.

- \+ Replaces existing diesel saildrives during refits with minimal effort and expense
- \+ Also suitable as original equipment for sailing yachts with a saildrive engine bed
- \+ Much lighter than diesel saildrives
- \+ Very quiet
- \+ Low maintenance and no winterization required
- \+ No diesel fumes, no diesel fuel in the bilge
- \+ Compatible with popular saildrives
- \+ 2-year limited warranty*

*For recreational use, from date of purchas

Rudder Drive in collaboration with Hanse Yachts and Jefa

Cruise FP models are light and small. So why not integrate them in the rudder? This saves a hole through the hull, eliminates the need for a saildrive and a stern thruster and provides fantastic maneuverability.
Taking advantage of all the benefits from electric pod motors and combining them with the simplicity of a rudder integration, Hanse is making a splash with their electric Hanse 315. We consider this the first time a leading large-scale sailboat manufacturer has offered a true electric alternative to the diesel inboard. The benefits:

- \+ 100 kg lighter
- \+ Quieter
- \+ Lower maintenance
- \+ No diesel smell and diesel in the bilge
- \+ Better maneuverability
- \+ Less drag and better performance under sail

Hanse 315	Speed in knots (km/h)	Range in nm (km) with 2 batteries	Range in nm (km) with 4 batteries
● ● ● Slow	3.0 (5.6)	33.2 (61.4)	66.2 (122.9)
● ● ● Half throttle	5.0 (9.2)	13.2 (24.4)	26.4 (48.8)
● ● ● Full throttle	6.0 (11.1)	7.5 (13.9)	15.0 (27.8)

Cruise motors

Accessories

Navigation

The upgrade for the onboard computer on your Bluetooth smartphone. With convenient navigational functions in real time.

- \+ Comprehensive navigation functions
- \+ Extremely easy to use
- \+ Wireless Bluetooth communication with your mobile phone
- \+ 2-year limited warranty*

*For recreational use, from date of purchase

TorqTrac

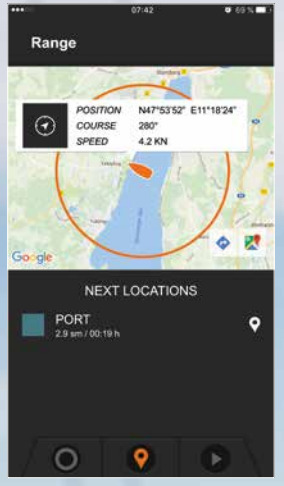
Bluetooth® transmitter module for a wireless connection between the onboard computer and a smartphone (system requirement: Bluetooth® 4.0 LE low energy). The associated app for Apple and Android can be downloaded free from your vendor's App Store. Microsoft apps are currently not supported.

Part no. 1924-00

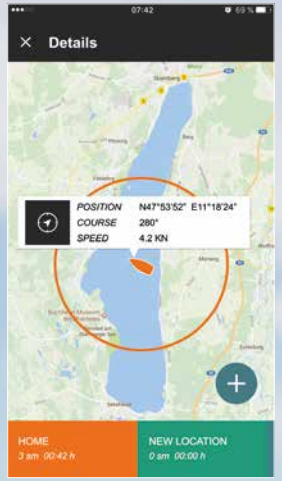
ANDROID APP ON Google play

Available on the App Store

Clear: All the values are easy to read on your smartphone display, even at night.



Precise: You always know your exact position and the remaining range thanks to GPS positioning data updated in real time.



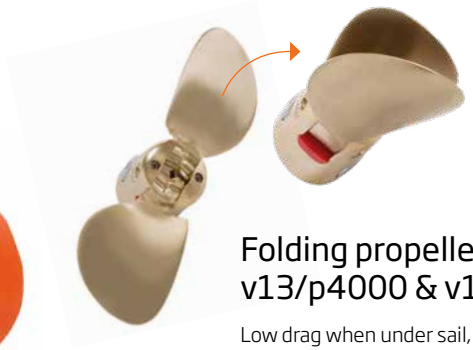
Convenient: Use waypoints to estimate your time of arrival, zoom into the map and save your favourite places.

Propeller

Spare propeller v20/p4000 *NEW*

For Cruise 2.0 / 4.0 from 2017.
Fast, efficient, weedless.

Part no. 1955-00



Folding propeller v13/p4000 & v15/p10k

Low drag when under sail, powerful propulsion while motoring.

Part no. 1932-00 (Cruise 2.0 / 4.0 FP)
Part no. 1945-00 (Cruise 10.0 FP)

Control

Throttle levers

Our electronic throttles offer the right solution for every application, whether for sailors or on motorboats – ergonomic, strong and functional.

More information on page 60/61.

Side-mount Sail

Part no. 1949-00

Side-mount Motor

Part no. 1950-00

Top-mount Single

Part no. 1951-00

Top-mount Twin

Part no. 1952-00

Cruise drives

Accessories & ordering information

All Cruise models can be run with modern lithium batteries, saving over 70% of battery weight in electric boat drive systems. AGM or lead-gel batteries are an alternative to lower the initial cost if saving weight and volume are not important. For best performance, choose Power 48-5000 or Power 26-104.

Power 26-104

Part no. 2103-00

Power 48-5000

Part no. 2104-00

	Cruise 2.0 R/T/FP		Cruise 4.0 R/T/FP		Cruise 10.0 R/FP	
Battery options	**Power 26-104 (lithium)**	**others (AGM / gel)**	**Power 48-5000* (lithium)**	**others (AGM / gel)**	**Power 48-5000* (lithium)**	**others (AGM / gel)**
Required battery voltage	24 V	24 V	48 V	48 V	48 V	48 V
Number of batteries	1	2	1	4	2	8
Battery bank capacity in kWh	2.7	3.6	5.0	7.2	10	14.4
Capacity not available in typical electric boating application (5 hour discharge rate)	n/a	20%	n/a	20%	n/a	20%
Capacity not available if deep discharge damage is to be avoided	n/a	20%	n/a	20%	n/a	20%
Usable energy for electric boating in kWh	2.7	2.2	5.0	4.3	10	8.6
Battery bank weight (in kg)	24	88	35	176	70	352

* preliminary data / battery modules from the BMW i range

AGM or lead-gel batteries for the Cruise

AGM or lead-gel batteries are recommended for electric boat systems where initial cost is a major concern and weight and volume are of secondary importance. When equipping an electric drive system with AGM or lead-gel batteries, care should be taken to choose models with demonstrably high discharge capacities. Batteries without this property, like most starter batteries, cannot cope with the massive loads drawn by boat drive systems over the long term and can very quickly reach the end of their useful life.

You find more information concerning the Power batteries on the next sides.

Ordering information

Cruise 2.0 / 4.0 / 10.0
High-tech outboards

Part no.	TS	TL	RS	RL	RXL
Cruise 2.0	**1234-00**	**1235-00**	**1230-00**	**1231-00**	-
Cruise 4.0	**1236-00**	**1237-00**	**1232-00**	**1233-00**	-
Cruise 10.0	-	-	**1240-00**	**1241-00**	**1242-00**

Included:
· Integrated onboard computer with GPS and display
· Fuse and main switch
· Emergency magnetic kill switch
· Cable set (3m)
· Battery cable bridge for lead batteries
· Tiller steering (T models) or throttle (R models)
· Connection with remote steering system (R models)
· v13/p4000 propeller (1954-00) for Cruise 2.0 models
· v20/p4000 propeller (1955-00) for Cruise 4.0 models
· v22/p10k propeller (1961-00) for Cruise 10.0 models

Cruise 2.0 / 4.0 / 10.0 FP
High-tech pod drives

	Part no.
Cruise 2.0 FP	1250-00
Cruise 4.0 FP	1251-00
Cruise 10.0 FP	1252-00

Included:
· Integrated onboard computer with GPS and display
· Fuse and main switch
· Emergency magnetic kill switch
· Cable set (3m)
· Battery cable bridge for lead batteries
· Throttle
· v19/p4000 (1933-00) for Cruise 2.0 / 4.0 FP
· v15/p10k (1937-00) for Cruise 10.0 FP

Cruise 10.0 FP Saildrive Mount
Highly efficient pod motor (fixed)

	Part no.
Cruise 10.0 FP SD-Mount	1253-00

Included:
· Adapter for mounting for the most popular saildrives
· Throttle lever
· Integrated onboard computer with GPS-based range calculation
· 70 mm² wiring set (3 m), including fuse and power switch
· Weedless propeller V15/P10k

Additional accessories and spares	Part no.
Spare propeller v13/p4000 (Cruise 2.0) ***NEW***	1954-00
Spare propeller v20/p4000 (Cruise 4.0) ***NEW***	1955-00
Spare propeller v15/p10k (Cruise 10.0)	1937-00
Spare propeller v32/p10k (Cruise 10.0)	1938-00
Spare propeller v22/p10k (Cruise 10.0) ***NEW***	1961-00
Folding propeller v13/p4000 (Cruise 2.0/4.0 FP)	1932-00
Folding propeller v15/p10k (Cruise 10.0 FP)	1945-00
Long tiller arm, 60 cm	1919-00
Twin Cruise extension set	1217-00
Motor cable extension (Cruise 2.0/4.0)	1204-00
Remote throttle cable extension 1.5 m	1921-00
Remote throttle cable extension 5m	1922-00

Power 48-5000 NEW / 26-104

With Power 48-5000, Torqeedo brings a new class of lithium batteries to the market. Based on automotive technology and BMW i battery modules, Power 48-5000 is in a class of its own with its combination of energy density, long service life, ISO standards compliance, and cost.

- \+ Record-level energy density of 151 Wh/kg – more than 70% better than typical lithium LiFePO4 batteries.*
- \+ Record-level cycle life: 80% capacity remaining after 3,000 cycles – 50% more than typical lithium LiFePO4 batteries.**
- \+ 8-year limited capacity warranty, making the use of AGM and Gel batteries for 48 volt systems obsolete.
- \+ Superior safety based on Torqeedo's 5-step safety system.
- \+ Built with BMW i battery module technology.
- \+ Cooling system ready, for commercial applications and use in hot climates.
- \+ Conforming to international Standard ISO 16315: 2016 (Small Craft Electric Propulsion System) requiring a final charge voltage of below 50 volts. Most other solutions on the market, including 48 volt banks of AGM and gel batteries, do not comply with this new standard in force since the end of 2016.

* Nominal capacity (5,275 Wh / 35 kg) is the most common specification for lithium batteries but Torqeedo also specifies useable energy.
For Power 48-5000, useable energy is 5,000 Wh, so energy density based on useable energy is 143 Wh/kg.

** 3,000 cycles at 25°C and at 80% depth of discharge will result in a capacity loss of less than 20%. Battery aging is dependant on usage cycles and calendar life.

Power 48-5000 NEW
Power 26-104

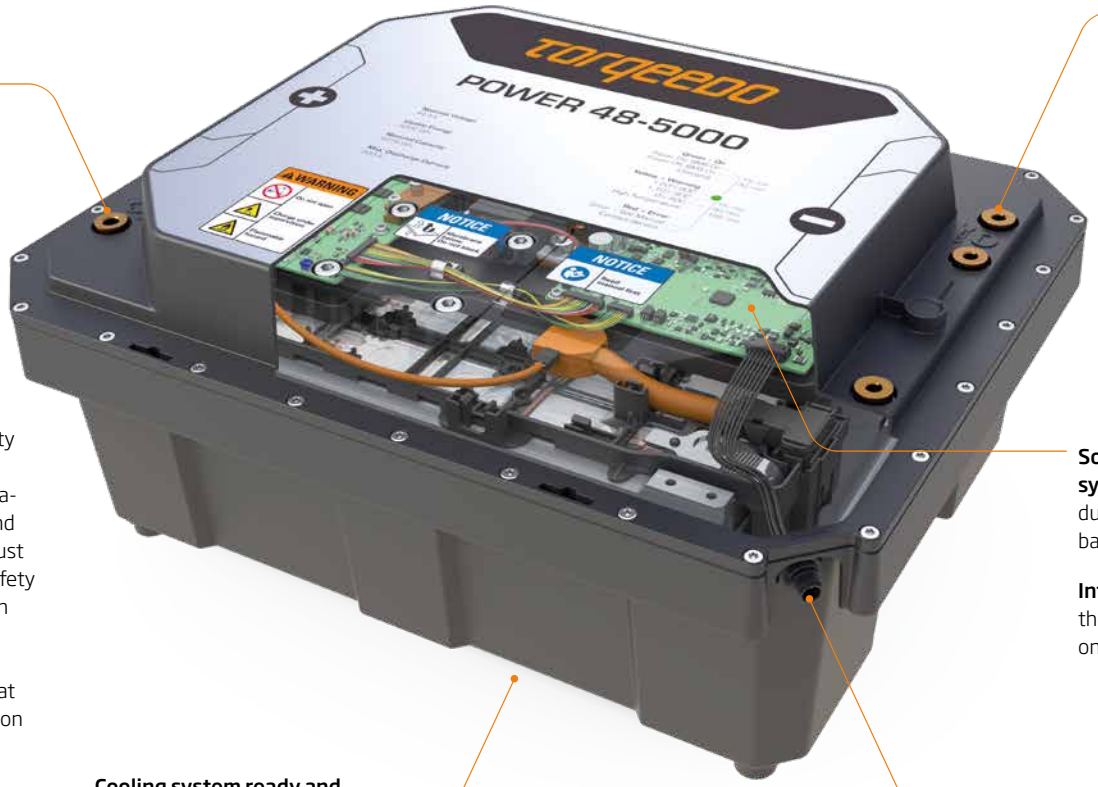
A class of its own in lithium batteries for boats:
70% more energy density and 50% longer cycle life than typical lithium LiFePO4 batteries

Power 48-5000 NEW / 26-104

Technical details & ordering information

Leading edge energy density, cycle life, cost, and safety. Conforming to ISO 16315.

Housing and all data connections **waterproof to IP67**



Isolatable poles ensure protection for safe transport and installation, and also guard against unintentional discharging when stored for long periods

Sophisticated battery management system (BMS) is fully integrated with redundant safety features and protective and balancing functions to extend battery life

Integrated information system identifies the battery and communicates with the Cruise onboard computer

The latest generation of automotive battery cells – Very high energy density – Prismatic cell design allows efficient cooling, a compact form, even temperature distribution within the battery and an extremely rugged structure – Robust protective aluminium housing with safety vent – From the automated production process of Samsung SDI, a leading manufacturer of lithium battery cells. The very rugged design is ideal for boat applications that place high demands on shock resistance.

Cooling system ready and suitable for professional use

Waterproof and well-protected data port

Long service life – more than 3,000 charge cycles and 8-year limited capacity warranty

The Power 48-5000 supplies all 48 V loads, or other voltage levels with a converter.

Power 26-104 can supply 24 V loads on board or other voltage levels with a converter.

Technical data

	Power 48-5000 *	Power 26-104
Useable energy	5,000 Wh	2,685 Wh
Nominal voltage	44.4 V	25.9 V
Weight	35.0 kg	24.3 kg
Energy density (weight)	143 Wh / kg	110 Wh / kg
Maximum discharge rate	200 A (8,880 W at nominal voltage)	180 A (4,500 W at nominal voltage)
Dimensions	506 x 386 x 224 mm	577.5 x 218.5 x 253.5 mm
Battery chemistry	Li NMC	Li NMC
Cycle lifetime	> 3,000 cycles at 80% depth of discharge at 25°C results in approx. 20% capacity loss	800 cycles at 100% depth of discharge at 25 °C results in approx. 25% capacity loss
Annual capacity loss	<3 %	4 %
Max. connections	2P	2S8P or 1S16P
Price-performance	1 EUR/Wh	0,93 EUR/Wh

* preliminary data / battery modules from the BMW i range

Ordering information

Power 48-5000 / Power 26-104
High-performance lithium battery

	Partno.
Power 48-5000	2104-00
Power 26-104	2103-00

Included:

· Data cable for connection to a Torqeedo Cruise drive system

Indication of battery capacity:

All Torqeedo battery capacity ratings refer to usable energy. We rate only the portion of the battery's capacity that you can really use. Other battery manufacturers generally rate higher capacities.

Service life and aging of lithium batteries:

The service life of a lithium battery is determined by time and, to a lesser extent, the number of charging cycles. The capacity loss over time is about 2-4% per year at an ambient temperature of 25°C. The aging process is accelerated if the battery is exposed to high temperatures. Lithium batteries can be used even when it is hot, but should be stored at a cooler temperature when possible.

What temperatures must be taken into account during operation, when charging and for storage?

Operating temperatures can be between -15 °C and +60 °C, and for charging between 0 °C and +45 °C. Storage temperature can be between -30 °C and +55 °C, with room temperature having a positive effect on life expectancy. The integrated battery management system protects the batteries against low temperatures and overheating during operation and charging. The BMS steps in to prevent the risk of damage through incorrect temperatures.

I rarely use my battery and store it for long periods. Will this damage a Power 48-5000 or a Power 26-104?

The latest Power models have an automatic deactivation feature. The battery's electronics will switch off 48 hours after the last use and the battery will go into hibernation mode. The battery can remain in this mode for up to a year provided it is charged to at least 30% of capacity. Even so, the battery's charge status should be checked every two months when stored for long periods. The battery should be quickly recharged after every complete discharge. Avoid discharging a battery fully and then storing it for a long time (without charging it) since that will damage any type of battery.

Why do the Power Batteries have a discharge limit?

One of the advantages of lithium batteries is that they can deliver very high currents. The flipside of this is that lithium batteries can do substantial damage if a short circuit occurs and high short circuit currents are not prevented. In our Power batteries, this important safety feature is integrated into the battery management system. If higher power limits are required, batteries can be connected in parallel, this way the maximum power limit can be multiplied.

What is the warranty on the Power batteries?

We give a 2-year warranty from the date of purchase for recreational use. In addition Torqeedo provides an 8-year limited capacity warranty.

More information: www.torqeedo.com

Deep Blue

More than just a battery-powered electric motor, Deep Blue is a fully integrated high-power system – customizable with modular components and industrially engineered to meet the highest demands. The result – exceptional performance, professional safety, compliance with international standards at the system level and highly intuitive operation. The single-source turnkey solution is available as an outboard, inboard or saildrive for recreational boats and commercial applications.

- The first high-performance electric drive system from serial production
- Standards-compliant, fully integrated complete system
- Best performance
- Maximum convenience
- Standard-setting professional safety
- Silent electricity generation by wind and sun
- Abundance of energy to power everything on board – with less pollution
- 9-year limited warranty on battery capacity*

* After 9 years of use, the batteries will still have 80% of original capacity, even if used on a daily basis.

Boats in protected waters – Sailboats up to 80 feet long – Commercial boats (e.g. Water taxis & ferries)

40 HP *equivalent**

80 HP *equivalent**

160 HP *equivalent**

Deep Blue
Deep Blue Hybrid

The complete solution for powerful electric propulsion

* The propulsive power of our Deep Blue electric drives is equivalent to comparably rated petrol outboards. See pages 12/13.

Deep Blue

One system, many applications

The versatile single-source solution

The award-winning Deep Blue system is ideal for large sailing yachts, motorboats and commercial applications such as water taxis, ferries and workboats. Deep Blue's expanded functions integrate propulsion and energy management into one complete system that can harness clean energy from solar panels or hydrogeneration while under sail. When necessary, electricity from shore power or from modern and efficient diesel generators can be used to extend range.

You will find a selection of best-practice examples in our forthcoming Torqeedo catalog for commercial applications.

Scalable Technology

The cornerstone of Deep Blue: a high-power electric propulsion system

The Deep Blue electric propulsion system is a completely integrated high-power system that provides efficient, clean, and convenient mobility on water.

- Electricity from on land charges the high-end lithium batteries.
- Energy is efficiently stored and ready for use. 9-year capacity warranty ensures a long battery life.
- The proven reliable power train delivers emission-free, quiet and powerful propulsion.

Added value: select from expanded features

Deep Blue's supplementary functions include complete energy management – each component's energy demands are monitored and managed by the central system, ensuring economical collection and efficient distribution of clean, renewable energy.

- Unlimited range and ultimate freedom with integrated hybrid mode
- Supplies all onboard loads, including air conditioning, with 110/220 volt AC power as required
- Renewable power generation, courtesy of the wind and sun
- Supplies marine electronics and other onboard loads with 24 volt DC power as required

Ecoboat

Shipyard: Metaltec	*120 passengers*
Designer: m2 Ingenieria Naval	*Twin Deep Blue 80i 1400*
Length: 18m	*8 x BMW i3 batteries*
Weight: 12 tons	*40 kW/h Solar*

Deep Blue

The system in brief

Electronic throttle: clean, slick design, with key switch, emergency-stop and neutral lock for safe operation. Power-trim-and-tilt for outboard operation.
(See page 60-61 for throttle options)

System Management Unit: Bundles the power and signal lines. Waterproof to IP67, with integrated water sensor

Deep Blue information system on high resolution marine display: touchscreen, waterproof, good sunlight readability. Clean, clearly arranged display of system information.

12 V battery: activates the high-capacity battery at each start-up. Supplies 12 V for the onboard network and is automatically charged from the 360 V battery. No additional 12 V charger required.

Charger: Advanced engineering from the automotive industry. Waterproof to IP67. The charging rate can be controlled via the display. Each system can support multiple chargers for faster charging when required.

High-power electric motor: Specially developed for the requirements of the Deep Blue system. Electronically commutated brushless motor with outstanding efficiency (max. 98%). Suitable for salt water cooling.

BMW i battery: latest battery generation from BMW i3 and BMW i8 series. Very high energy density, durable, robust, highest level of quality and safety.

High-voltage cables and connections with pilot line and insulation monitor. The pilot line and insulation monitor are safety features that protect the entire system from damage. What is standard on land for high-voltage equipment is unique to Torqeedo on the water.

AC connection box: Bundles all AC inputs and allows charging from onshore power (while at dock) or from a generator (while at sea).

Remote maintenance option via VPN connection

Configure your own Deep Blue System

Deep Blue was developed in a fully integrated yet modular way. Choose from various options to configure Deep Blue to match your requirements.

Motor options
Outboards, inboards, saildrive

Throttle options
Side mount sail, side mount motor, top mount single, top mount twin

Multiple batteries

Multiple chargers

Multiple throttles

Multiple motor systems

Solar integration

Generator integration

Energy management and hotel load integration

Deep Blue motors

Technical details

Specifically developed for the requirements of the Deep Blue systems – maximum efficiency, long service life, low maintenance. Available in several models for different uses:

- Electronically commutated brushless **motor with outstanding efficiency** (98%)
- **Waterproof to IP67**
- Suitable for **saltwater cooling**
- Part of the fully integrated Deep Blue drive system

- **Power trim and tilt function (PTT)**
- Extremely **efficient propeller design** with hub-vortex vane

Deep Blue 40 / 80 outboard models

The most powerful electric outboards from industrial serial production. R models provide control via electronic throttle, T models provide tiller control. Available in two performance classes and as long shaft (RL/TL) and extra long shaft (RXL/TXL) versions.

SPEED AND RANGE**

Deep Blue 40 with two 9.1 kWh batteries

	Speed in knots (km/h)	Range in nm (km)	Running time in hh:mm
● ○ ○ Slow	4.0 (7.5)	29-46 (53-86)	07:00 - 11:30
● ● ● Full throttle	17-24 (32-44)	13-17 (23-32)	00:45

Deep Blue 80 with one 30.5 kWh battery

	Speed in knots (km/h)	Range in nm (km)	Running time in hh:mm
● ○ ○ Slow	4.0 (7.5)	24-78 (44-144)	06:25 - 19:15
● ● ● Full throttle	19-29 (36-54)	12-18 (22--33)	0:35

* The propulsive power of our electric drives is equivalent to comparably rated petrol outboards. See pages 12/13.
** Depends on type of boat, load, propeller and conditions. Speed and range indications do not represent a legal guarantee.

40 HP equivalent*

80 HP equivalent*

Deep Blue 40 Saildrive

The highest-performance electric saildrive system from serial production. 25 kW input power, highest efficiency.

- **Lightweight:** Saildrive with motor and electronics system 85 kg
- **Space-saving design**
- Compatible with standard saildrive mounting flanges

Deep Blue 40 / 80 inboard models

The most powerful integrated drive system from serial production
Available in two performance classes. Shaft drive at 1,800 or 1,400 rpm.

- **Lightweight:** Inboard with motor and electronics system 85 kg
- **Compact construction**
- **Available in motor-speed versions** of 1,800 rpm and 1,400 rpm
- **Suitable for saltwater cooling**

SPEED AND RANGE**

Deep Blue 40 SD with 30.5 kWh battery

	Speed in knots (km/h)	Range in nm (km)	Running time in hh:mm
● ○ ○ Slow	5.0 (9.3)	30 (55)	06:00
● ● ● Full throttle	10 (18.5)	12 (22)	01:15

Deep Blue 80 i 1800 with one 30.5 kWh battery

	Speed in knots (km/h)	Range in nm (km)	Running time in hh:mm
● ○ ○ Slow	4.0 (7.5)	24-78 (44-144)	06:25 - 19:15
● ● ● Full throttle	19-29 (36-54)	12-18 (22-33)	0:35

Deep Blue

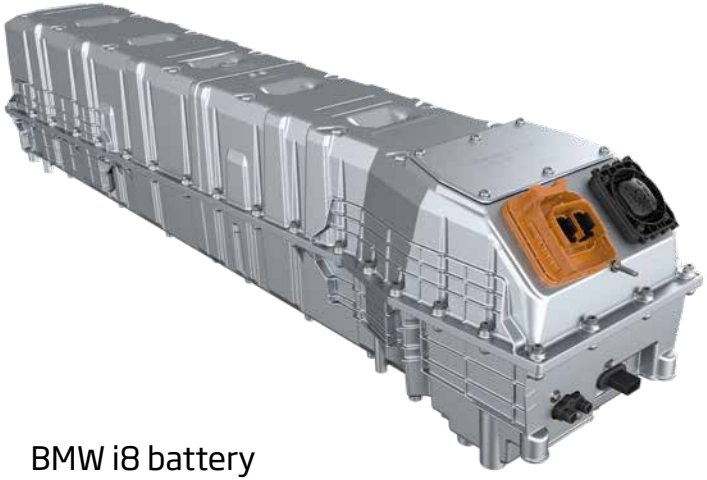
Energy supply

Cooperation between BMW i and Torqeedo has made state-of-the-art automotive battery engineering available for the marine market. The battery technology introduced in the BMW i3 and optimized with a smaller footprint for the BMW i8 can now power your Torqeedo drive.

BMW i3 battery

Latest battery technology of the BMW i3 series: high energy density, long service life, robust and built with the highest quality and safety standards.

Avon e-JET-Tender 430 with Torqeedo Deep Blue 80 and BMW i battery



BMW i8 battery

A single 9.1 kWh i8 battery can power a 40 HP Deep Blue motor, making a system weight of under 250 kg possible.

Technical data

	BMW i3	BMW i8 (2018)*
Nominal voltage	360 V	355 V
Max. continuous performance	55 kW	25 kW
Capacity	30.5 kWh	9.1 kWh
Weight	256 kg	98 kg
Dimensions	1660 x 964 x 174 mm	1460 x 305 (240) x 330 mm

** preliminary data*

Deep Blue

Throttles and displays

Optimised user interface

High-tech information systems are an integral feature of all Torqeedo motors. The user interface for Deep Blue displays important data on a high-resolution, beautifully designed touchscreen marine display.

We've come to expect an intuitive way to operate our technical devices. We expect detailed information, nicely displayed and clearly arranged. We expect that the objects we use are both beautiful and functional.

This is what spurred us to create the new Torqeedo throttle family and improved user interface for Deep Blue.

The right controls for every application

Side-mount sail throttle

Sleek design, unobtrusive lever. No gap between throttle lever and cockpit side, so no lines can entangle. Neutral-lock for safe operation. As in all new Torqeedo control levers, the Bluetooth module for the TorcTrac app is already integrated. Separate LCD display included.

For Deep Blue Saildrive

Part no. 1949-00

Side-mount motor throttle

Classic electronic throttle for motor boats with power trim and tilt. Mechanical zero-point release under the handle, can be mounted on either side of the boat. Separate LCD display included.

For all Deep Blue models

Part no. 1950-00

Top-mount single

Drive-by-wire throttle for surface mounting with ergonomically optimised, extra-wide handle surface and broad hand-rest, integrated power trim and tilt function and integrated display in the base.

For all Deep Blue models

Part no. 1951-00

Top-mount twin

Dual throttle for twin motors for surface mounting with ergonomically optimised handle surface, integrated power trim and tilt function and integrated display in the base.

For Deep Blue twin installations

Part no. 1952-00

The power of Deep Blue – taken farther

Deep Blue's advanced feature set offers a unique opportunity to expand your enjoyment on the water

More convenience

Silent motoring, with the only sound the gentle splash of your wake.

Go farther, while minimizing the noise and fumes of a diesel engine.

Enjoy air conditioning without generator noise.

Worry-free relaxation - plenty of power for every luxury on board .

More sustainability

Minimize harmful exhaust emissions and noise pollution.

Use renewable energy to power the entire vessel.

When necessary, efficient converter-generator ensures interruption-free enjoyment.

More user-friendliness

Only one fuel needed on board – and less of that.

Battery capacity and recharging are controlled automatically by the Advanced Hybrid Control System.

More independence

Less dependence on shore power.

Extend your voyage - visit the marina when it is most convenient.

Transparent, trackable maintenance schedule means more time on the water.

Chart your own course with Deep Blue

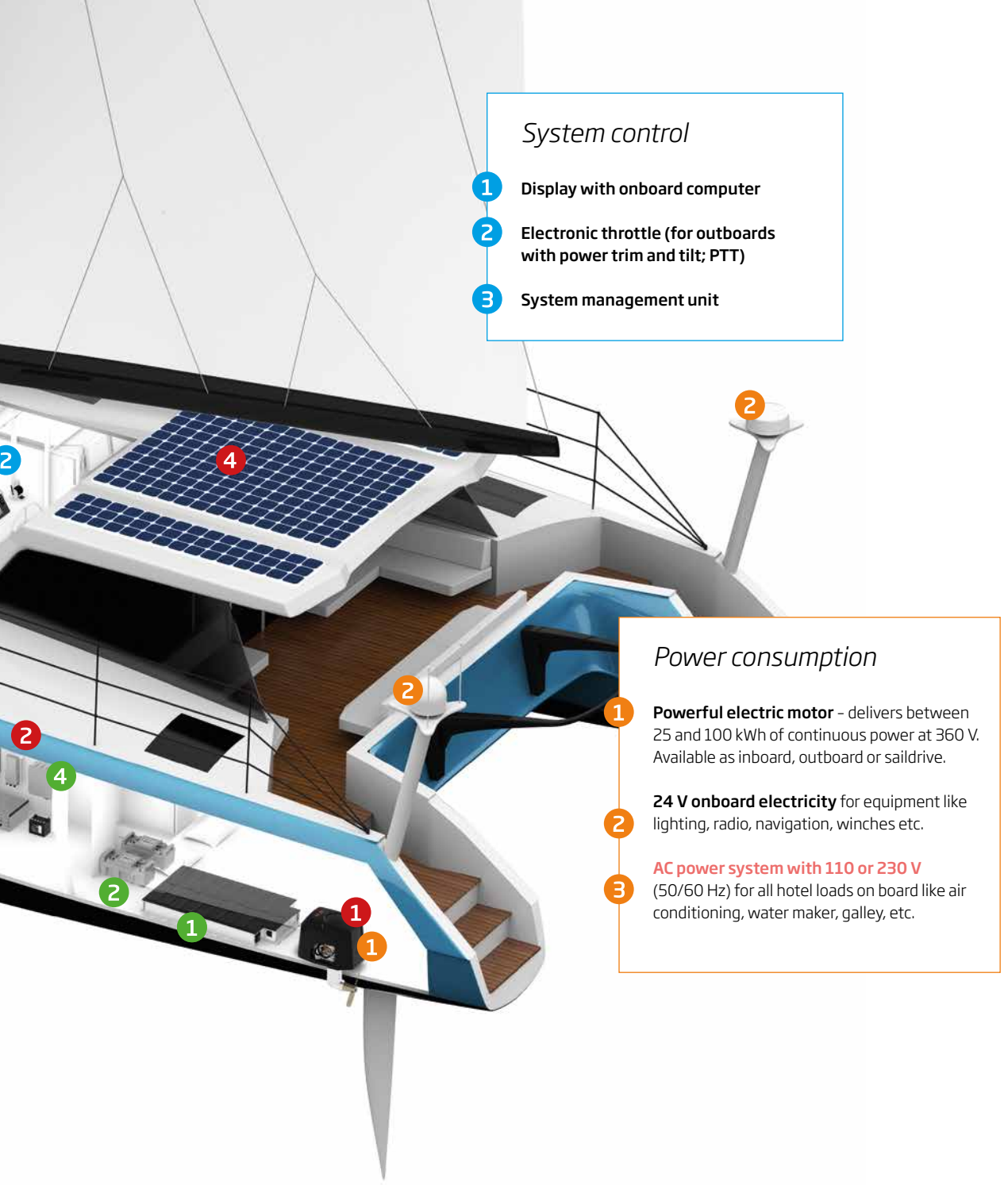
- First hybrid system with **powerful electric propulsion** (25 - 100 kW continuous power)
- **Fully integrated system**
- Flexible and scalable through **modular design**
- **Industrial engineering** and production
- **Standards-compliant** at system level
- International **warranty**
- **Remote diagnostics, remote upgrade and remote maintenance**
- **International service network**

Power supply

1. **Hydro-generation –** the electric drive system can be used to generate power while under sail.
2. **Onshore power connection.** The large battery bank can be recharged with sufficient energy for the voyage when in port.
3. Efficient **state-of-the-art diesel generator.** Only runs when power requirements exceed the renewable sources and available battery capacity. Runs at optimum operating point feeding the 360 V system directly.
4. **Photovoltaic modules** generate power from solar energy.

Storage and conversion

1. **360 V high-capacity lithium battery system**
2. **24 V onboard power lithium battery system**
3. **Bi-directional DC/DC converter**
4. **DC/AC inverter**



System control

1. **Display with onboard computer**
2. **Electronic throttle (for outboards with power trim and tilt; PTT)**
3. **System management unit**

Power consumption

1. **Powerful electric motor** – delivers between 25 and 100 kWh of continuous power at 360 V. Available as inboard, outboard or saildrive.
2. **24 V onboard electricity** for equipment like lighting, radio, navigation, winches etc.
3. **AC power system with 110 or 230 V** (50/60 Hz) for all hotel loads on board like air conditioning, water maker, galley, etc.

Components – technical data

Scalable design allows installation of one or more of each component.

Motors: outboards	**Deep Blue 40**	**Deep Blue 80**
Output (peak)	33 kW	66 kW
Output (continuous)	25 kW	50 kW
Torque	205 Nm	205 Nm
Weight (incl. electronics)	from 139 kg	from 139 kg

Motors: inboards	**Deep Blue 40i**	**Deep Blue 80i**
Output (peak)	33 kW	60 kW
Output (continuous)	25 kW	50 kW
Torque	1,400: 350 Nm / 1,800: 280 Nm	
Weight (incl. electronics)	85 kg	85 kg

Motors: saildrives	**Deep Blue 40 SD**
Output (peak)	33 kW
Output (continuous)	25 kW
Torque	180 Nm
Weight (incl. electronics)	85 kg

Generator	
Output (peak)	20 kW
Output (continuous)	20 kW
Weight (including sound insulation)	260 kg

Batteries	**High-voltage**	**Low-voltage**
Capacity	33 kWh	2.7 kWh
Voltage	360 V	26 V
Weight	254 kg	26 kg

Inverter	**DC-AC**
Output power	6 kW
Weight	25 kg

Further components	**Solar charge controller**	**High-voltage charger**
Output power	0.2 kW	3 kW
Weight	0.3 kg	4 kg + heat dissipation plate (6 kg)

System Management Unit	
Weight	10 kg

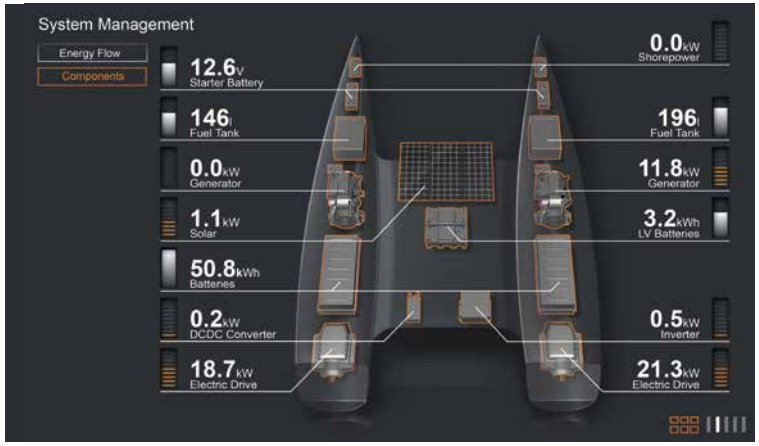
Always in control

Deep Blue Hybrid offers intuitive operation presented on the multi-functional display, providing a complete overview of the entire system and access to all control functions.

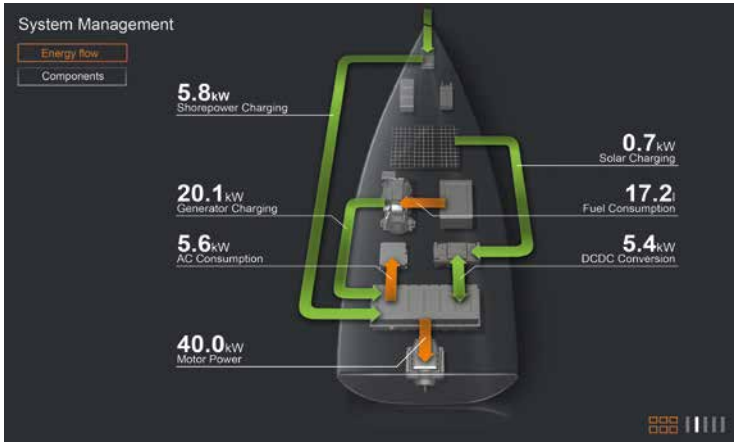
The software keeps an eye on everything and prevents errors like deep-discharging batteries. Available with GUI for multihulls or monohulls.

Main menu
navigate easily between different categories

Drive screen:
all important information needed while motoring. You can choose to display or hide the information line at the top.



System management: provides status data on all system components. Select individual components for more detail.



Energy flow:
Understand your system's power balance and energy flow at a glance

20 kW Range Extender

Quiet, lightweight, efficient – the first converter generator for serial hybrid marine applications

Economical auxiliary power

Torqeedo's HVDC converter generator supplies DC power directly to Deep Blue systems without the inefficiencies that limit standard generators, providing long-range motoring and efficient backup power for serial hybrid systems.

The 20 kW Range Extender is fully integrated into the information and safety systems of Deep Blue Hybrid. The engine always runs at its most efficient operating point, which means fewer pollutants are emitted and less noise and vibration are produced. This results in longer engine life and an improvement in the onboard quality of life.

The converter generator eliminates the fixed ratio between rotational speed, power and voltage output. Using sophisticated power electronics as part of the Deep Blue Hybrid system, it can produce all required combinations of power and voltage as they are needed.

Operating modes

The Deep Blue Advanced Energy Management System offers four ways of conveniently operating the hybrid system automatically:

ELECTRIC: Generator off; completely electrical operation.

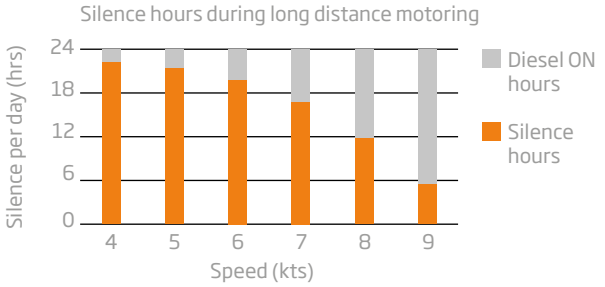
CHARGE: The generator recharges the batteries. As soon as the desired level of charge has been reached, the HYBRID mode starts automatically.

HYBRID: The generator starts automatically if the battery charge falls below the previously defined level.

FLOAT: Motoring with the generator operating, generating exactly the amount of power the motor is using, and maintaining the battery's state of charge.

Quiet on board

The noise, smell and vibration of a diesel generator can be further minimized by carefully scheduling operation and battery charging at times that are less likely to disturb your enjoyment. With Deep Blue Hybrid, the system assures that you have a full charge each evening, allowing a quiet, fume-free and comfortable rest.



Professional safety

Safety standards for high-performance electric drives demand industrial engineering

Powerful electric propulsion systems require industrial-level safety and engineering. With its pioneering development of the Deep Blue System, Torqeedo has set the standard for safety in high-power electric boating. Other industries, such as high-power machinery or automotive, offer well-established safety standards. But, simply adopting these standards is not sufficient. Due to their unique characteristics, marine drive systems require specific safety measures and must meet different challenges and norms than products from other industries.

Let's examine some of the elements of the Deep Blue safety system.

Honored with its very own insurance tariff

Electric drive systems are gaining ground - on land and on the water. Many systems on the market are one-off solutions from small companies without comprehensive engineering for safety. This results in a high rate of dangerous accidents and expensive insurance tariffs.
The comprehensive safety system and standards-compliance of Deep Blue has been recognized by PANTAENIUS, Europe's leading yacht insurance company with a special, lower insurance tariff that provides more comprehensive protection.

PANTAENIUS
Yachtversicherungen

The **insulation monitor** constantly monitors that the voltage from all 360 V components is completely isolated from the boat – not just for individual system components but for all of them. If damage is detected, e.g. to the cable insulation, the system will issue an alert. In the event of dangerous insulation failure, the system will be shut down.

The **pilot line** monitors all 360 V cable connections on the Deep Blue. It will shut off the system immediately if it detects exposed high-voltage contacts in order to avoid any risk. Pilot lines have been mandatory for high-voltage equipment in other industries. They are not typically found in high-voltage, made-to-order boat drives.

Automotive industry-level battery safety: The first lithium batteries for the marine industry with the advanced quality standards of the automotive sector are the result of Torqeedo's collaboration with established battery manufacturers. Integrating a battery into a drive system and the associated safety concept alone requires considerable effort that can only be achieved by working together with the battery manufacturer.

IP67

All components are waterproof: Components that were not specifically developed for boats are not always waterproof. All the components of a high-power system on a boat must be waterproof to guarantee safe operation. That is why all of our components are waterproofed and, in some cases, are further protected with water sensors.

Battery venting: In the unlikely event that the redundant safety mechanisms of the battery fail, the battery cells can reduce their temperature and pressure via a pressure valve. While batteries are installed in electric cars in such a way that they can discharge battery gases directly onto the road, on electric boats the gases must be channelled safely off the vessel. We developed the first safe venting system for boats for the Deep Blue System.

Battery damping: All components on fast and seagoing boats are subject to constant high levels of shock that exceed shock levels on the road – in some cases over 12 g of acceleration force. The same holds true when trailering the boat. Since batteries and battery electronics are not designed for these constant impacts, they need their own damping system on boats (in addition to the damping mechanisms within the battery). Torqeedo is the only company in the world that provides this for maritime use.

It all adds up

Flat fee boating –
economical electric mobility
for commercial operators
and frequent users

Will electric save me money?

Are your fuel costs higher than 4,500 EUR per year? If they are, it might be worth switching to Deep Blue today. Deep Blue protects you from changing fuel costs - electricity prices are more stable and much less expensive.

9-year battery capacity warranty

Evaluating the costs of going electric accurately depends on the service life of the battery system. Deep Blue comes with a long-term battery capacity warranty: 9 years after commissioning, the batteries will retain 80 % of their original capacity, even if you use them every day*. The battery capacity status can be viewed at any time via the onboard computer.

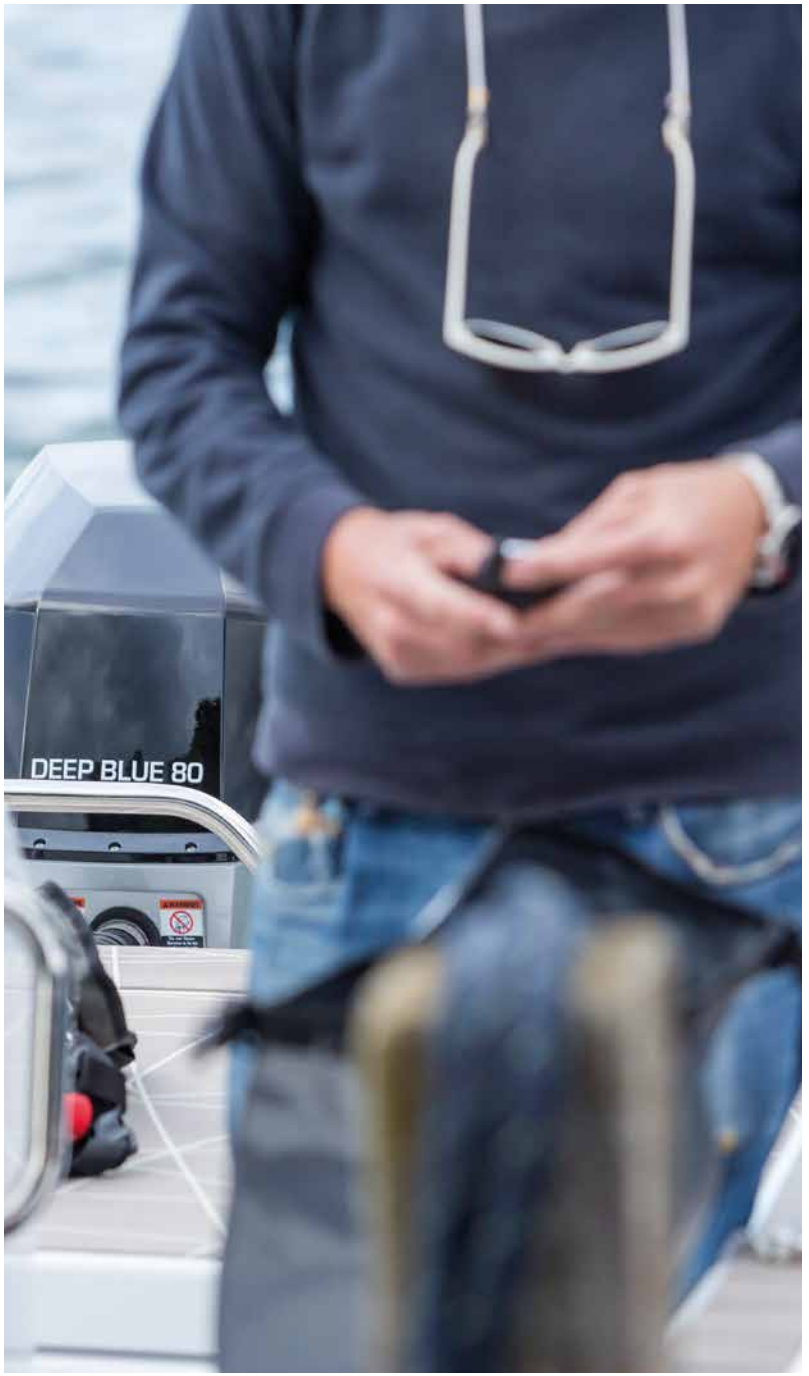
Lower maintenance costs

An electric drive system requires less maintenance than comparable systems burning fossil fuels.

Electric offers a better experience for passengers and safer working conditions for crew members

Electric tour boats, water taxis and ferries provide passengers with quiet, convenient and emission-free transportation. For crew members, who operate vessels several hours per day, electric boats offer substantially better working conditions, reducing their exposure to noise, exhaust, vibration and fumes.

* Warranty terms apply. Find out details at www.torqeedo.com.



Technical Data Outboards & Pods ≤ 20 HP equivalent

	ULTRALIGHT 403	TRAVEL 503 S/L	TRAVEL 1003 S/L	TRAVEL 1003 C S/L	CRUISE 2.0 TS/TL	CRUISE 4.0 TS/TL
Input power in watts	400	500	1,000	1,000	2,000	4,000
Propulsive power in watts	180	240	480	480	1,120	2,240
Comparable petrol outboard (shaft power)	1 HP	1.5 HP	3 HP	3 HP	5 HP	8 HP
Comparable petrol outboard (thrust)	2 HP	2 HP	4 HP	4 HP	6 HP	9.9 HP
Comparable diesel inboard (shaft power)	-	-	-	-	-	-
Comparable diesel inboard (thrust)	-	-	-	-	-	-
Maximum overall efficiency in %	45	48	48	48	56	56
Static thrust in lbs*	33	40	68	68	115	189
Integrated battery	320 Wh Li-Ion	320 Wh Li-Ion	530 Wh Li-Ion	915 Wh Li-Ion	-	-
Nominal voltage in V	29.6	29.6	29.6	29.6	24	48
Final charging voltage in V	33.6	33.6	33.6	33.6	-	-
Total weight in kg	8.9	13.9(S) / 14.5(L)	14.4(S) / 15.0(L)	14.9 (S) / 15.5 (L)	17.5 (S) / 18.6 (L)	18.3 (S) / 19.4 (L)
Motor weight without battery, in kg	4.4	8.9 (S) / 9.5 (L)	8.9 (S) / 9.5 (L)	8.9 (S) / 9.5 (L)	-	-
Weight of integrated battery, in kg	4.5	5.0	5.5	6.0	-	-
Shaft length in cm	45	62.5 (S) / 75 (L)	62.5 (S) / 75 (L)	62.5 (S) / 75 (L)	62.4 (S) / 74.6 (L)	62.4 (S) / 74.6 (L)
Standard propeller (v = speed in km/h at p = power in watts)	v10/p350	v9/p790	v9/p790	v9/p790	v19/p4000	v19/p4000
Alternative propeller options	-	v8/p350	-	-	v8/p350 v30/p4000	v8/p350 v30/p4000
Maximum propeller speed in rpm at full load	1,200	700	1,200	1,200	1,300	1,300
Control	Throttle	Tiller	Tiller	Tiller	Tiller	Tiller
Steering	Provision to connect to kayak rudder; lockable	360° lockable	360° lockable	360° lockable	360° lockable	360° lockable
Tilting device	Manual, with impact protection	Manual, with impact protection	Manual, with impact protection	Manual, with impact protection	Manual, with impact protection	Manual, with impact protection
Trim device	-	Manual, 4-step	Manual, 4-step	Manual, 4-step	Manual, 4-step	Manual, 4-step
Stepless forward/reverse drive	yes	yes	yes	yes	yes	yes
Integrated onboard computer with display	yes	yes	yes	yes	yes	yes

*Torqeedo static thrust measurement is based on internationally accepted ISO standards. Static thrust figures for conventional trolling motors are typically measured differently, which results in higher values. To compare Torqeedo static thrust data with conventional trolling motors, add approximately 50% to the Torqeedo static thrust values.

	CRUISE 2.0 RS/RL	CRUISE 4.0 RS/RL	CRUISE 10.0 R	TWIN CRUISE 2.0 R	TWIN CRUISE 4.0 R	CRUISE 2.0 FP	CRUISE 4.0 FP	CRUISE 10.0 FP
	2,000	4,000	10,000	4,000	8,000	2,000	4,000	10,000
	1,120	2,240	5,600	2,240	4,480	1,120	2,240	5,600
	5 HP	8 HP	20 HP	8 HP	15 HP	-	-	-
	6 HP	9.9 HP	25 HP	12 HP	20 HP	-	-	-
	-	-	-	-	-	5 HP	8 HP	20 HP
	-	-	-	-	-	6 HP	9.9 HP	25 HP
	56	56	56	56	56	56	56	56
	115	189	315	230	378	115	189	315
	-	-	-	-	-	-	-	-
	24	48	48	24	48	24	48	48
	-	-	-	-	-	-	-	-
	15.3 (S) / 16.2 (L)	16.1 (S) / 17.0 (L)	59.8 (S) / 61.3 (L) / 62.5 (XL)	31.0 (S) / 33.1 (L)	32.5 (S) / 34.5 (L)	15.4	15.8	33.5
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	62.4 (S) / 74.6 (L)	62.4 (S) / 74.6 (L)	38.5 (S) / 51.2 (L) / 63.9 (XL)	62.4 (S) / 74.6 (L)	62.4 (S) / 74.6 (L)	-	-	-
	v19/p4000	v19/p4000	v32/p10k	v19/p4000	v19/p4000	v19/p4000	v19/p4000	v32/p10k
	v8/p350 v30/p4000	v8/p350 v30/p4000	v15/p10k	v8/p350 v30/p4000	v8/p350 v30/p4000	v13/p4000 (folding propeller)	v13/p4000 (folding propeller)	v15/p10k (folding propeller)
	1,300	1,300	1,400	1,300	1,300	1,300	1,300	1,400
	Throttle	Throttle	Throttle	Throttle	Throttle	Throttle	Throttle	Throttle
	Provision to connect to standard remote steering; lockable	Provision to connect to standard remote steering; lockable	+/-65°	Provision to connect to standard remote steering; lockable	Provision to connect to standard remote steering; lockable	-	-	-
	Manual, with impact protection	Manual, with impact protection	Power tilt	Manual, with impact protection	Manual, with impact protection	-	-	-
	Manual, 4-step	Manual, 4-step	Manual, 4-step	Manual, 4-step	Manual, 4-step	-	-	-
	yes	yes	Yes	yes	yes	Yes	Yes	Yes
	yes	yes	Yes	yes	yes	Yes	Yes	Yes

Technical data Outboards & inboards 40 / 80 HP equivalents

	Single DB80/DB40 Drivetrain System				Twin DB80/DB40 Drivetrain System	
Shaft Power Continuous	DB40 - 25 kW		DB80 – 50 kW		2 x DB40 25kW	2 x DB80 50 kW
BMW Batteries	1 x 9.1 kWh BMW i8 **BMW i8** (available from March, 2018)	2 x 9.1 kWh **BMW i8** (available from March, 2018)	1 x 30.5 kWh **BMW i3**	2 x30.5 kWh **BMW i3**	2 x 30.5 kWh **BMW i3**	2 x 30.5 kWh **BMW i3**
Motor Options	**DB40**	**DB40**	**DB80**	**DB80**	**DB40**	**DB80**
Inboard 1800 rpm	x	x	x	x	x	x
Inboard 1400 rpm	x	x	x	x	x	x
Outboard	x	x	x	x	x	x
Saildrive	x	x	-	-	x	-
System Weight (without cables) (varies with motor type and options selected)	250 – 300 kg	350 – 395 kg	425 – 505 kg	735 – 790 kg	820 – 935 kg	820 – 935 kg
System Display Choice out of 2 versions Standard: 7", Optional: 12"	Touchscreen 7" Color	Touchscreen 7" Color	Touchscreen 7" Color	Touchscreen 7" Color	Touchscreen 7" Color	Touchscreen 7" Color
Throttle Options						
Single Side Mount Motor	x	x	x	x	–	–
Single Side Mount Sail	x	x	x	x	–	–
Single Top Mount	x	x	x	x	–	–
Twin Top Mount	–	–	–	–	x	x
Charging Options						
Standard Power	3/6/9 kW	6/9 kW	3/6/9 kW	3/6/9 kW	6/9/12/15/18 kW	6/9/12/15/18 kW
Charging Time	1.5 - 3.5 h	2.5 - 3.5 h	3.5 h - 10 h	7 h - 10 h	3.5 - 10 h	3.5 - 10 h

Ordering information

DRIVES & BATTERIES

ULTRALIGHT

Part no.	Product	Description
1404-00	Ultralight 403	Ultralight outboard, 1 HP equivalent, with integrated 320 Wh high-performance lithium battery, including charger, throttle, onboard computer, GPS-based range calculation and emergency magnetic kill switch
1405-00	Ultralight 403 A	As part no. 1404-00, mounts easily to fishing kayaks
1416-00	Spare battery Ultralight 403, 320 Wh	High-performance lithium battery with integrated GPS receiver, 320 Wh, 29.6 V, 11 Ah.
1417-00	Spare battery Ultralight 403, 915 Wh	High-performance lithium battery with integrated GPS receiver, 915 Wh, 29.6 V, 31 Ah.

TRAVEL

Part no.	Product	Description
1140-00	Travel 503 S	High-efficiency outboard with integrated 320 Wh high-performance lithium, 1.5 HP equivalent, including onboard computer with GPS-based range calculation, charger, emergency magnetic kill switch, short shaft
1141-00	Travel 503 L	As part no. 1140-00, but with long shaft
1142-00	Travel 1003 S	High-efficiency outboard with integrated 530 Wh high-performance lithium, 3 HP equivalent, including onboard computer with GPS-based range calculation and charger, emergency magnetic kill switch, short shaft
1143-00	Travel 1003 L	As part no. 1142-00, but with long shaft
1149-00	Travel 1003 CS	High-efficiency outboard with integrated 915 Wh high-performance lithium battery, 3 HP equivalent, including onboard computer with GPS-based range calculation and charger, emergency magnetic kill switch, short shaft
1150-00	Travel 1003 CL	As part no. 1149-00, but with long shaft
1147-00	Spare battery Travel 1003/503, 530 Wh	High-performance lithium battery with integrated GPS receiver, 530 Wh, 29.6 V, 18 Ah.
1148-00	Spare battery Travel 1003/503, 915 Wh	High-performance lithium battery with integrated GPS receiver, 915 Wh, 29.6 V, 31 Ah.

CRUISE

Part no.	Product	Description
1234-00	Cruise 2.0 TS	High-efficiency outboard, 5-6 HP equivalent. With tiller steering, integrated onboard computer with GPS-based range calculation, 25 mm² cable set (3 m) including fuse and main switch, short shaft version
1235-00	Cruise 2.0 TL	As part no. 1234-00, but with long shaft
1236-00	Cruise 4.0 TS	High-efficiency outboard, 8-9.9 HP equivalent. With tiller steering, integrated onboard computer with GPS-based range calculation, 25 mm² cable set (3 m) including fuse and main switch, short shaft version
1237-00	Cruise 4.0 TL	As part no. 1236-00, but with long shaft
1230-00	Cruise 2.0 RS	High-efficiency outboard, 5-6 HP equivalent. Includes connection to remote steering, throttle, integrated onboard computer with GPS-based range calculation, 25 mm² cable set (3 m) including fuse and main switch, short shaft version
1231-00	Cruise 2.0 RL	As part no. 1230-00, but with long shaft
1232-00	Cruise 4.0 RS	High-efficiency outboard, 8-9.9 HP equivalent. Includes connection to remote steering, throttle, integrated onboard computer with GPS-based range calculation, 25 mm² cable set (3 m) including fuse and main switch, short shaft version
1233-00	Cruise 4.0 RL	As part no. 1232-00, but with long shaft
1240-00	Cruise 10.0 RS	High-efficiency outboard, 20 HP equivalent. Includes connection to remote steering, throttle, integrated onboard computer with GPS-based range calculation, 70 mm² cable set (4.5 m) including fuse and main switch, plug connector, short shaft version
1241-00	Cruise 10.0 RL	As part no. 1240-00, but with long shaft
1242-00	Cruise 10.0 RXL	As part no. 1240-00, but with extra-long shaft
1250-00	Cruise 2.0 FP	High-efficiency pod motor (fixed position), 5-6 HP equivalent. Includes throttle, integrated onboard computer with GPS-based range calculation, 25 mm² cable set (3 m) including fuse, main switch and propeller
1251-00	Cruise 4.0 FP	High-efficiency pod motor, fixed position, 8-9.9 HP equivalent. Includes throttle, integrated onboard computer with GPS-based range calculation, 25 mm² cable set (3 m) including fuse, main switch and propeller
1252-00	Cruise 10.0 FP	High-efficiency pod motor (fixed position), 20 HP equivalent. Includes throttle, integrated onboard computer with GPS-based range calculation, 70 mm² cable set (4.5 m) including fuse and main switch, plug connector and propeller
1217-00	Twin-Cruise control set	For twin motors based on Cruise 2.0 R, 4.0 R or 10.0 R models, consisting of aluminium dual throttle with dual information display and 56 cm tie bar
1905-00	Anode Al Cruise 2.0/4.0 R/T/FP	Anode for operating 2.0/4.0 models with standard propeller (with part no. 1915-00, 1916-00, 1923-00, 1933-00, 1953-00). Attachment to motor shaft, made from aluminium, for use in fresh water
1939-00	Anode Zn Cruise 2.0/4.0 R/T/FP	Anode for operating 2.0/4.0 models with standard propeller (with part no. 1915-00, 1916-00, 1923-00, 1933-00, 1953-00). Attachment to motor shaft, made from zinc, for use in saltwater

Part no.	Product	Description
1941-00	Anode set Al Cruise 2.0/4.0 FP	Anode set for Cruise 2.0/4.0 FP models with folding propeller (part no. 1932-00). Consists of 2 ring anodes for attachment to the propeller and 1 anode for attachment to the pylon, made from aluminium, for use in fresh water
1942-00	Anode set Zn Cruise 2.0/4.0 FP	As part no. 1941-00, but made from zinc, for use in saltwater
1935-00	Anode set Al Cruise 10.0 R	Anode set made from aluminium for use with Cruise 10.0 R in fresh water, consists of 1 shaft anode, 2 half-ring anodes, 2 ring anodes
1936-00	Anode set Zn Cruise 10.0 R	As part no. 1935-00, but made from zinc, for use in saltwater
1947-00	Anode set Al Cruise 10.0 FP	Anode set for Cruise 10.0 FP models with folding propeller (with part no. 1945-00). Consists of 2 anodes for attachment to the propeller, 2 ring anodes and 1 anode for attachment to the pylon, made from aluminium, for use in fresh water
1948-00	Anode set Zn Cruise 10.0 FP	As part no. 1947-00, but made from zinc, for use in saltwater

POWER

2103-00	Power 26-104	High-performance lithium battery, 2,685 Wh, rated voltage 25.9 V, charge 104 Ah, weight 24.3 kg, with innovative battery management system including numerous protective functions, waterproof to IP67; includes: cable for communication with Cruise system
2104-00	Power 48-5000 ***NEW***	High-performance lithium battery, 5.000 Wh, rated voltage 44,4 V, weight 35 kg, with innovative battery management system incl. safety functions; waterproof to IP67; includes: cable for communication with TQ- CAN
2213-00	Charger 700 W for Power 48-5000 ***NEW***	Charge current 13A, charges the Power 48-5000 from 0% to 100% in a maximum of 10hours, waterproof IP65
2206-20	Charger 350 W for Power 26-104	Charge current 10 A, charges the Power 26-104 from 0 to 100% in a maximum of 11 hours, waterproof to IP65
2210-00	Fast charger 1,700 W for Power 26-104	Charge current 60 A, charges the Power 26-104 from 0 to 100% in < 2 hours, waterproof to IP65
2304-00	On/off switch for Power 26-104	Switch for activating/deactivating the Power 26-104, IP65, with LED on/off status display; the on/off switch is required when the Power 26-104 is used without a Cruise system
1934-00	Spare cable bridges Cruise models	Cable set for connecting 2 additional Power 26-104 to a battery bank; includes 1 series bridge cable, 40 cm, 35 mm² with post terminal connector, 4 parallel bridge cables, 40 cm, 35 mm² with ring terminal connectors and M12 nuts, 2 data cables, 1.5 m with waterproof data plug connectors
2207-00	Solar charge controller for Power 26-104	Enables the Power 26-104 to be charged with solar energy. (Solar modules not included.) Integrated MPPT maximises the energy yield of the solar modules during charging, very high level of efficiency. Maximum output power 232 watts (8 A, 29.05 V)
2211-00	Fast solar charge controller for Power 26-104	Enables the Power 26-104 to be charged with solar energy. (Solar modules not included.) Integrated MPPT maximises the energy yield of the solar modules during charging, very high level of efficiency.

ACCESSORIES

EXTRAS

1925-00	Travel bags (2-piece)	For transporting / storing Travel 503/1003 models. Includes 2 bags – one bag for the motor (including tiller and accessories) and one bag for the battery.
1926-00	Travel battery bag	For transporting and storing Travel 503/1003 batteries.
1931-00	Protective cover Travel	For Travel 503/1003 Protects the motor cable from UV fading and the shaft head from dirt. Water-resistant and breathable
1924-00	TorqTrac	Smartphone app for Travel 503/1003, Cruise T/R as well as Ultralight models. Allows larger display of the onboard computer showing range on map and with many other benefits. Requires a Bluetooth Low Energy®-capable smartphone
6503-00	Men's softshell jacket	Dark blue with appliqué decoration. Hood, three zipper pockets, zip fastener. Breathable, wind- and water-resistant (3-layer membrane). Material: 100% polyester. Sizes: S, M, L, XL, XXL, XXXL
6502-00	Men's polo shirt	Grey mélange with appliqué decoration. High-quality piqué made from pure cotton. Buttons and collar Sizes: S, M, L, XL, XXL, XXXL
6501-00	Men's T-shirt	White with print. Material: 100% cotton. Sizes: S, M, L, XL, XXL, XXXL

CHARGING EQUIPMENT

1132-00	Sunfold 50	Foldable 50 W solar panel, convenient size, highly efficient, plug & play connections for waterproof charging of the Travel 503/1003 models and Ultralight 403, only compatible with battery part no. 1146-00, 1147-00, 1148-00, 1416-00 and 1417-00
1130-00	Solar charger 45 W	Roll-out solar module, extremely weather-resistant and specially made for use on water. Plug-&-play connections for waterproof charging of Travel battery part no. 1144-00 and 1145-00 and Ultralight battery part no. 1413-00. Includes protective cover for easy transport and storage Discontinued model – available while stocks last
1133-00	Charger 90 W for Travel and Ultralight batteries	90 watt charger for electric sockets rated 100- 240 V and 50-60 Hz. For use only with batteries part no. 1146-00, 1147-00, 1148-00, 1416-00 and 1417-00
1127-00	Charger 40 W for Travel and Ultralight batteries	40 watt charger for electric sockets rated 100-240 V and 50-60 Hz. For use only with Travel 503/1003 and Ultralight 403 batteries
1131-00	Fast charger Travel 503/1003 and Ultralight 403	120 watt charger for electric sockets rated 100-240 V and 50-60 Hz. For use only with batteries part no. 1144-00, 1145-00 and 1413-00

PROPELLERS & FINS

Part no.	Product	Description
1912-00	Spare propeller v10/p350	For Ultralight models 402 and 403 (A) (Ø 200 mm)
1917-00	Spare propeller v9/p790	For models Travel 1003 (C) and Travel 503 from 2014 (Ø 292 mm)
1915-00	Spare propeller v8/p350	For Cruise 2.0/4.0 models manufactured from 2009 onwards, slower speed, lower effectiveness, greater thrust (Ø 300 mm).
1916-00	Spare propeller v19/p4000	For Cruise 2.0/4.0 models manufactured from 2009 to 2016, faster, more effective, weedless (Ø 300 mm)
1933-00	Spare propeller v19/p4000	For Cruise 2.0/4.0 models manufactured from 2017 onwards, faster, more efficient, weedless (Ø 300 mm).
1923-00	Spare propeller v30/p4000	High-speed propeller for Cruise 2.0/4.0 R/T models manufactured from 2009 to 2016, for planing with light boats (Ø 320 mm)
1953-00	Spare propeller v30/p4000 ***NEW***	High-speed propeller for Cruise 2.0/4.0 models manufactured from 2017 onwards, for planing with light boats (Ø 320 mm)
1954-00	Spare propeller v13/p4000 ***NEW***	For Cruise 2.0/4.0 models manufactured from 2017 onwards, slower speed, greater thrust (Ø 300 mm)
1955-00	Spare propeller v20/p4000 ***NEW***	For Cruise 2.0/4.0 models manufactured from 2017 onwards, faster, more efficient, weedless (Ø 300 mm)
1961-00	Spare propeller v22/p10k ***NEW***	Für all Cruise 10.0 models, medium speed for planing and displacement
1901-00	Spare propeller v8/p350	For models Travel 401, 801 and 503, Base Travel and Cruise models (manufactured 2006-2008 (Ø 300 mm)
1932-00	Folding propeller v13/p4000	For use with Cruise 2.0/4.0 FP models on sailboats
1937-00	Spare propeller v15/p10k	For all Cruise 10.0 models, optimised for high thrust, weedless
1938-00	Spare propeller v32/p10k	Speed propeller for all Cruise 10.0 models, optimised for planing
1945-00	Folding propeller v15/p10k	For use with Cruise 10.0 FP model on sailboats
9145-00	Fin for Travel 503/1003 (C)	Protects the outboard when running aground
9234-00	Fin for Cruise R/T	Protects the outboard when running aground, for Cruise models with part no. 1209-00 to 1223-00
9258-00	Fin for Cruise R/T	Aluminium fin coated in polyurethane (PU) foam for Cruise models with part no. 1230-00 to 1237-00. Better protection when running aground
9259-00	Fin for Cruise 10.0 R	Protects the outboard when running aground

CABLE, CONTROL, STEERING

Part no.	Product	Description
1918-00	Throttle for Travel 503/1003 (C) (Spare part for Cruise models, Ultralight 403)	Enables operation with throttle instead of tillers for models Travel 503/1003, including integrated display with information on battery status, GPS-based speed and remaining range calculation, including 1.5 m and 5 m connecting cables between motor and throttle. Can also be used as a spare part for Cruise and Ultralight models
1921-00	Cable extension for throttle, 1.5 m	Extension cable for Travel 503/1003, Ultralight and Cruise models, allows a greater distance between throttle / tiller and motor
1922-00	Cable extension for throttle, 5 m	As part no. 1921-00, 5 m length
1949-00	Throttle Sail side mounting	Electronic throttle for sailboats, with on/off switch, emergency magnetic kill switch and 1.28" display
1950-00	Throttle side mounting	Electronic throttle for motorboats, with power trim and tilt, key switch, magnetic kill switch and 1.28" display
1951-00	Throttle top mounting	Electronic throttle, with power trim and tilt, key switch, magnetic kill switch and 1.28" display
1952-00	Dual throttle top mounting	Electronic throttle, with power trim and tilt, key switch, magnetic kill switch and 1.28" display
1956-00	Cable extension for throttle, 3 m ***NEW***	Extension cable for a longer distance between the components. Only for part no. 1949-00, 1950-00, 1951-00 and 1952-00. 3 m length
1957-00	Cable extension for throttle, 5 m ***NEW***	As part no.1956-00, 5 m length
1958-00	Cable extension for throttle, 0,5 m, angled-end ***NEW***	90° angled-end extension cable for rigging in tight spaces. Only for part no. 1949-00, 1950-00, 1951-00 and 1952-00. 0.5 m length
1919-00	Long tiller arm	60 cm tiller tube extension, for Travel and Cruise T models
1920-00	Motor cable extension for Travel and Ultralight	Cable connection extension between battery and motor for the models Ultralight 403 and Travel 503/1003, allows a greater distance (2 m) between battery and motor, with waterproof plug connections
1204-00	Motor cable extension Cruise	Extension for Cruise cable set (between motor and battery), 2 m long, with plug connector
1914-00	Emergency magnetic kill switch	Emergency stop key and immobiliser for Travel, Cruise and Ultralight models
1927-00	Spare parts set Travel	Set for Travel consisting of emergency kill switch, battery attachment pin and steering fixing pin
1940-00	Cable bridges for AGM/gel batteries	Cable bridges for running Cruise 10.0 with AGM/gel batteries. Consists of: 4 cables, 40 cm, 35 mm² with post terminal connector
1128-00	12/24 V charger cable for Travel 503/1003 (C) and Ultralight 403	Allows the Travel 503/1003 (C) models and the Ultralight 403 to be charged from a 12/24 V power source

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