

TORGEEDO
STARNBERG.GERMANY

The Leader in Clean Outboards

CATALOGUE 2012



Success stories often start in garages. This is ours...

A plot of land direct on Lake Starnberg; a wooden boat; an electric outboard. So began the Torqeedo story. Because, according to the experts, the electric outboard then adorning the company founder and managing director Christoph Ballin's boat represented the lowest level of the then current state of the technology. You could build a motor three times as efficient, they said. No sooner said than done! And so, in 2006, the first Torqeedo outboard came to be.

Since then, Torqeedo has been producing the most efficient electric outboards in the world and is market leader in the sector, bringing new innovation to the water every year and making waves in every respect.

Our outboards are currently available in over 40 countries around the world and, with the continually growing interest in electric mobility in the boat sector, demand is constantly increasing.

Superior technology and revolutionary benefits are written large in our culture. And every product that we bring to market fulfils both of these criteria. For the coming season, there are 13 drives from 1 to 15 HP, all with record levels of overall efficiency, all with integrated on-board computer with GPS based remaining range calculation, speed over ground and battery charge status indication and all waterproof to IP 67.

In addition, with the Power 26-104 we've reached an unsurpassed level of intelligence, safety and performance in the field of lithium battery technology. Plus, we offer a wide range of well thought out accessories, such as a solar charger that guarantees independence from the nearest power socket.

Come on board – and be transported through the pages by the world's most efficient electric outboards. Completely clean, quiet and nevertheless with plenty of power.



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Why we build the world's best electric outboards.

The answer lies in the details. Details that come from a combination of the newest technical developments from various fields, resulting in a unique outboard concept. That means careful selection of materials, many of which are high-tech. And finally, uncompromising optimization of performance, torque, efficiency, weight and convenience play a decisive role.

High-tech and convenience: you experience both every time you use a Torqeedo outboard. The on-board computer with GPS-based remaining range calculation and the all-round waterproofing (IP 67) of all components. Even more important: the high-tech features that you can't see. But you feel. When accelerating, in handling – always – when you're underway with your Torqeedo outboard.

Electronic Commutation

Normally, sliding contacts – so called brushes – are used to switch the polarity in electric motors and cause them to run.

Torqeedo motors are everything but normal. They create an alternating field contactlessly using electronic, digital switching. Integrated into the drive system, it switches the polarity through the coils 35,000 times per second.

Benefits of this method:

- the leading angle of the alternating field can be better matched to the load and speed, making it more efficient.
- there is no brush loss and
- the motors don't need servicing.

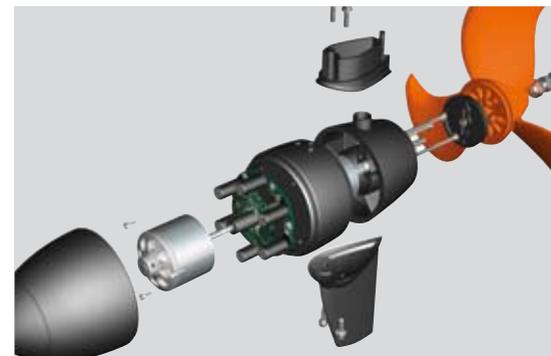
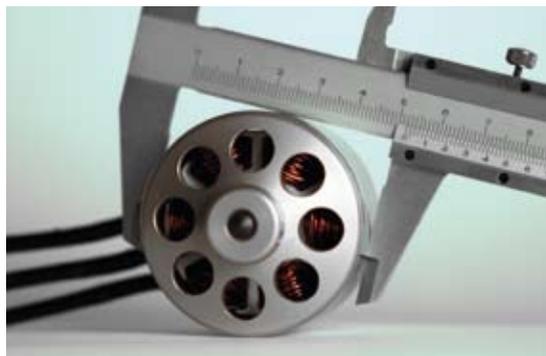
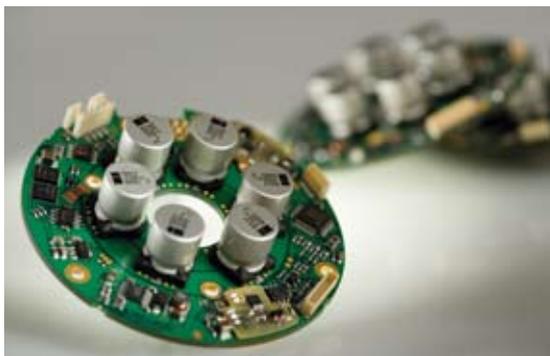
Outrunner Design

In conventional electric motors, the rotor is located inside and surrounded by the stator. The magnets are on the inside and the coils that generate the alternating field are on the outside. Consequently, the magnetic field where the torque is generated lies relatively far inside so that this classic design only produces low torque.

Torqeedo uses so-called outrunners in which the coils are arranged internally with the magnets mounted externally on a moving bell. With this design, the field that generates torque is moved outwards as far as possible producing much higher torque. Additionally, the area covered by the magnets is greater on the outside, which results in even more torque.

Rare-Earth Magnets

Instead of the usual hexaferrite magnets, Torqeedo uses rare-earth magnets. They're much more expensive, but provide six times the field strength, which means they deliver six times as much torque. The outstanding torque that Torqeedo motors deliver means they can drive propellers extremely efficiently.



Conventional Propeller Optimisation

Viewed conventionally, there are three main characteristics that define an efficient propeller:

1. large diameter
2. high pitch
3. low rotational speed

A large circumference results in a high mass flow rate of the propeller. High pitch has a positive effect through additional speed induced by the propeller. On the other hand, increased rotational speed of the propeller leads to increased loss of efficiency.

Because of their unusually high torque, Torqeedo motors are able to drive efficient propellers, i.e. they can turn larger propellers with higher pitch through the water comparably slower.



Multidimensional Propeller Optimisation

The construction of most propellers used in out-board motors today is based on results from a series of tests carried out between the 1940's and 1960's. The results are still seen in general design principles today and are used as a rule of thumb.

For several years now, the most modern commercial ships have been fitted with propellers designed according to a multidimensional optimisation calculation. In this process, a vortex grid calculation is used to optimise all segments of the propeller over many thousands of iteration steps.

This is also how Torqeedo propellers are made.



Lithium Battery Technology

Lithium-based battery systems are by far the most powerful sources of energy currently available. They are characterised by their high specific energy density, i.e. they can store more energy per kilogramme of battery weight. In addition, they can withstand high current, which enables them to deliver their capacity even under high currents. Both of these properties are very significant for applications in boat drives. For Torqeedo boat motors we only use lithium batteries.



Small lexicon of power ratings – what boat motors can really do



The various boat manufacturers work with different performance ratings for their products which makes comparison difficult. The most meaningful performance indicator of a drive system is **propulsive power**, which indicates the performance actually delivered by the boat's motor, taking all losses into account including propeller losses. This method has been in use for almost 100 years in commercial shipbuilding. Nevertheless, in recreational boating, less informative indicators are used.

To provide you with as much transparency as possible, Torqeedo provides all relevant performance ratings. Not only propulsive power, which we feel is the most appropriate, but also input power and static thrust data.

Petrol outboards

Performance rating:
shaft power [HP or watts]

When manufacturers of petrol outboards talk about horsepower, they mean shaft power measured at the propeller shaft. Shaft power, however, doesn't take propeller losses into account. Depending on propeller loss, over 60% or, on the other hand, only 20% of the shaft power is available to drive the boat. It would be nice to know more precisely.

Conventional electric outboards

Performance rating:
input power [HP or watts]

Input power indicates the energy consumption of a motor. But it doesn't indicate how much of the energy consumed is lost through inefficiency and how much is actually available to drive the boat. This amount – or overall efficiency – differs considerably and varies between 18% and 56% (Torqeedo). Therefore, the input power alone says very little about an outboard.

Trolling motors

Performance rating:
static thrust [lbs or lbf]

Static thrust indicates the ability of a motor to move a boat from standing still to a very very slow speed. It does not indicate its ability to move a boat at normal speed. As a performance indicator it is therefore inadequate.

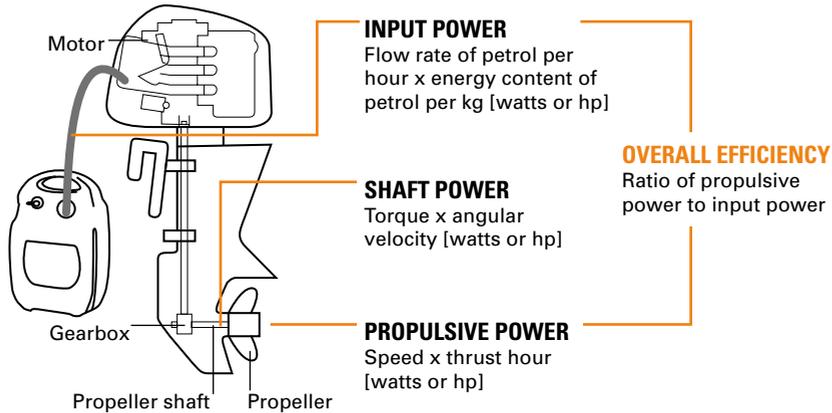
Torqeedo electric outboards

Performance rating:
propulsive power [HP or watts]

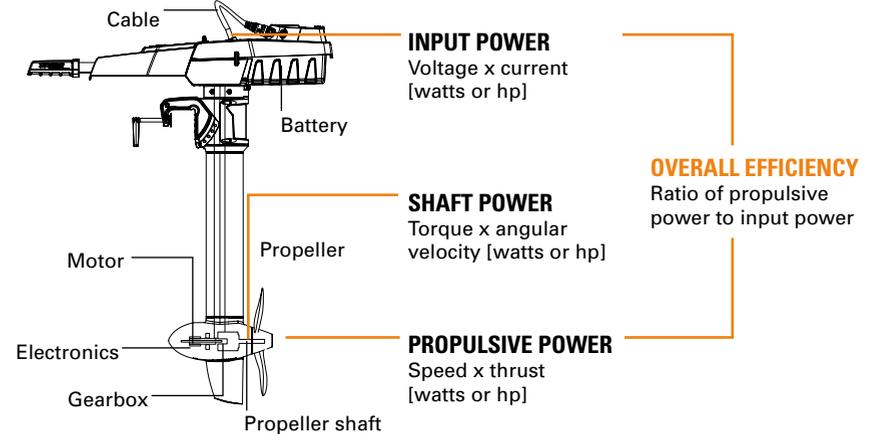
Just like the manufacturers of large ships, at Torqeedo, we always state the propulsive power of our outboards, i.e. the power actually delivered that drives the boat, taking into account all losses, including propeller losses. Using propulsive power, all outboards can be compared with each other. Sadly, you'll search in vain for the figures for propulsive power in other manufacturers catalogues.

OUTBOARD PERFORMANCE INDICATORS – WHERE THEY ARE MEASURED

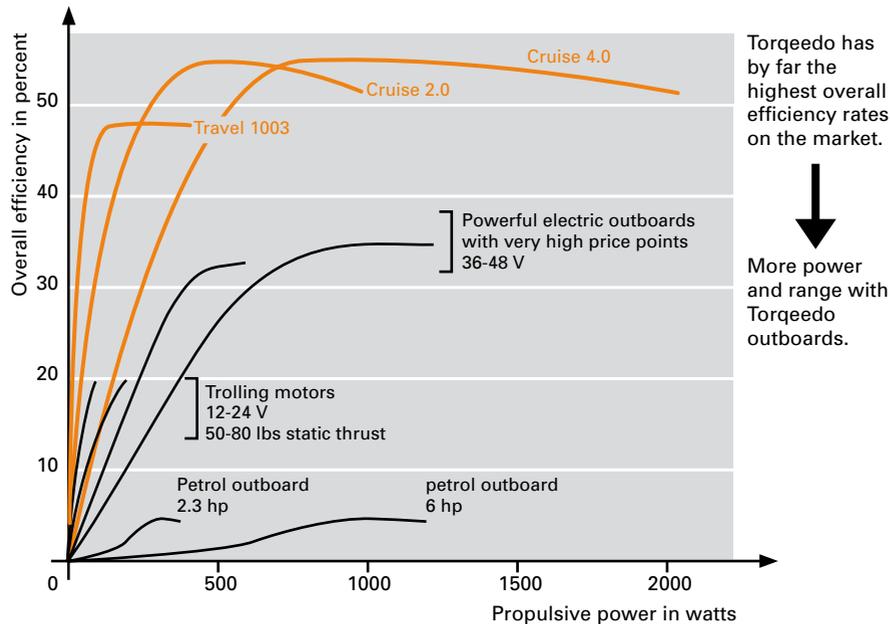
Petrol Outboards



Electric Outboards



PROPULSIVE POWER AND OVERALL EFFICIENCY RATES OF VARIOUS OUTBOARDS



When dealing with electric outboards, another performance indicator that needs to be considered is the **overall efficiency**. It describes the proportion of propulsive power compared to input power. For electric outboards, overall efficiency is one of the key performance indicators; because batteries only have a small fraction of the energy density compared to petrol, the battery capacity is almost always the limiting factor for power and range of an electric motor.

Higher overall efficiencies result in more power and range. Overall efficiencies of electric outboards and trolling motors range between 18 and 56% and differ from each other considerably by a factor of around 3.

For petrol outboards, the overall efficiency is not such a relevant indicator because, due to the high energy density of petrol, lower efficiencies can be simply compensated for with higher petrol consumption. The overall efficiencies of small petrol outboards are therefore particularly poor at around 5-10%, i.e. 90-95% of the petrol in the tank is lost and only about 5-10% arrive to propel the boat.



ULTRALIGHT 403



up to
9.8 km/h



1 HP
equivalent



7.3 kg



waterproof
IP 67



on-board computer
with GPS

U light up my life.

A motor on a kayak? Awesome! Because it's not just any motor, it's the Ultralight 403 and weighs just 7 kg including battery and throttle. So it doesn't restrict performance when paddling, but pushes when it's needed: against the current, against the wind and against tired arms. Plus, it's perfect for hands-free fishing and trolling – the right amount of power to get you where you need to be. Quietly! And when it drives, it drives properly. There's not only more power in this lightweight than you'd think at first sight, it demonstrates real endurance, taking you up to a full 42 km on a single charge at an average speed of 4 km/h (boat dependent). Which can be done simply and precisely because the throttle display shows the precise

speed over the ground – just one of four values that the integrated on-board computer always has ready. In addition, battery charge status and remaining range are available at any time with conditions such as current and tides taken into account. If the range isn't sufficient for you, just take the solar panel on board and charge easily en route, even you're underway.

With the included mounting ball, the Ultralight fits almost every kayak. All components – motor, battery and throttle – are completely waterproof to IP 67. So whether you're on inland water or the sea, the Ultralight 403 is the ideal companion for every trip into the blue.

***"I've never used an electric engine before and I'm keen to try one out.
Off we go and the Torqeedo is great ...!"***

Watercraft Magazine (UK)



ULTRALIGHT 403 –

key features:

- Total weight 7.3 kg including battery
- Maximum speed 9-10 km/h (boat dependent), faster than any trolling motor
- Range at lower speed 42 km (boat dependent)
- Completely waterproof (IP 67)
- Precise GPS-based calculation of remaining range
- Solar rechargeable – including during the voyage



ULTRALIGHT 403 with integrated battery (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 hours
Slow speed	4.2	35.2	8:20
Half power	6.0	25.0	4:10
Full power	9.3	7.4	0:48

ULTRALIGHT 403 with integrated battery (29.6 V / 11 Ah)

Touring kayak (Prijon Prilite T470), 4.7 m, 23 kg

	Speed in km/h	Range in km	Running time in hours
Slow speed	4.2	42.0	10:00
Half power	6.2	26.0	4:10
Full power	9.8	7.8	0:48

Mounting:

4 mounting options are available.

1. For use with Hobie kayaks: we recommend the Hobie "eVolve" available through Hobie dealers.
2. For use with Grabner kayaks: please use Grabner mounting kits.
3. For use with Prijon kayaks, please use the Prijon rudder mount.
4. All others: by using the mounting ball provided, the Ultralight 403 can be easily mounted on almost any kayak.

Steering:

the Ultralight 403 can be attached to the kayak's steering system/rudder.

Safety:

The motor shuts off when the magnetkey is removed from the remote throttle control. The motor only runs when the magnetkey is placed in position on the throttle and stops immediately when the pin is removed. For safety reasons, the magnetkey should be attached to your wrist or life vest. If the kayak capsizes, the motor shuts off automatically to avoid possible injury.

Battery charging:

When fully discharged, the charge time with the charger supplied is approx. 12 hours.

Solar charging:

A 45 W solar panel is available as an accessory.

Lithium battery life expectancy:

The life of a lithium battery is barely affected by charging cycles. It has no memory effect. Therefore, the battery can be fully recharged after every trip, regardless of the charge status shown on the display. Generally, a loss of capacity of 4% per year can be expected. Ageing is accelerated if the battery is exposed to high temperatures for long periods while fully charged.

Our recommendation: the battery can be used in very hot conditions but should be stored in a cool place away from the sun when not in use. 8 years after date of production, your battery needs to be inspected by a service center.

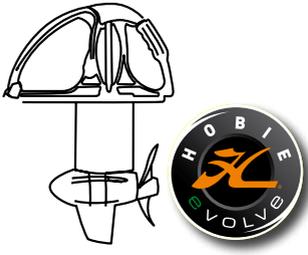
Specifications integrated battery:

The integrated battery has a capacity of 320 Wh, i.e. 11 Ah at 29.6 V.

Limited warranty: 2 years

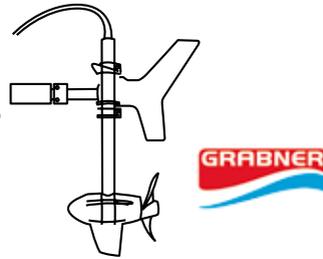
Technical data and ordering information: Pages 30/31

For Hobie Kajaks



Ask your Hobie dealer for the Hobie eVolve kayak motor.

For Grabner Kajaks



Ask your Grabner dealer for the Ultralight 403 and its mounting kit.

For Prijon Kajaks



Ask your Prijon dealer for the Ultralight 403 and its mounting kit.

Accessories



Spare battery Ultralight (320 Wh)



Charger for spare battery Travel and Ultralight



Solar panel 45 W



Motor cable extension Travel and Ultralight



Throttle cable extension Travel, Ultralight and Cruise, 1.5 m/5 m



Spare propeller v10/p350



TRAVEL 503/1003

TRAVEL 503



up to
4 knots



1.5 HP
equivalent



12.7 kg (S)/
13.3 kg (L)



waterproof
IP 67



on-board computer
with GPS

TRAVEL 1003

up to
5 knots

3 HP
equivalent

13.4 kg (S)/
14.0 kg (L)

waterproof
IP 67

on-board computer
with GPS

Take the long way home.

Imagine that you could easily and cleanly break your outboard down into three parts for simple transport and storage. And in just a few easy steps, put it back together again. Imagine that you could accelerate with such control that your enjoyment on the water begins in the harbour when casting off. Imagine that you could change from travelling ahead to astern with just a twist of the hand. And that during normal passage, you could converse at normal volume. You can! With the Travel. In terms of performance and efficiency, it provides everything a petrol outboard offers. But it's much more convenient, quieter and environmentally friendlier. The Travel 1003 drives tenders, dinghies and daysailers up to 1.5 tons effortlessly for up to 10 hours. The tiller display with its integrated GPS receiver constantly provides a precise overview of how fast you're travelling and the remaining range. So that you always know

that you'll get to where you want. If you've drained the lithium battery, recharge it via the mains or the 12V on-board system. To do so, you don't have to dismount the entire motor; it's enough to unplug the battery, which, at around 4 kg really isn't heavy, and carry it to the power source.

You can also increase your range while you're on the water. With the solar charger that ensures the battery charge increases. No wonder that the Travel, which was awarded "Best Choice Winner" along side a range of other distinctions and awards, has also been chosen as "Green Product of the Year 2011" A wonderful outboard – and we're not the only ones who think so:

"... the powerful thrust produced by the Torqeedo Travel 1003 makes one thing clear: electric outboards are here to stay"
Practical Sailor (USA)

"A class of its own in speed and thrust...!"

Yachtrevue (Austria)



TRAVEL 503/1003 –

key features:

- can do everything that a 1.5/ 3 HP petrol outboard can, plus it's environmentally friendlier, quieter, lighter and more convenient
- completely waterproof (IP 67)
- On-board computer with GPS-based calculation of remaining range
- solar rechargeable – including during the voyage
- can be easily dismantled for transport and space-saving storage
- a clean affair: no matter how or where you store your Travel, there's no risk that anything will leak out or smell

Throttle display – provides information about:

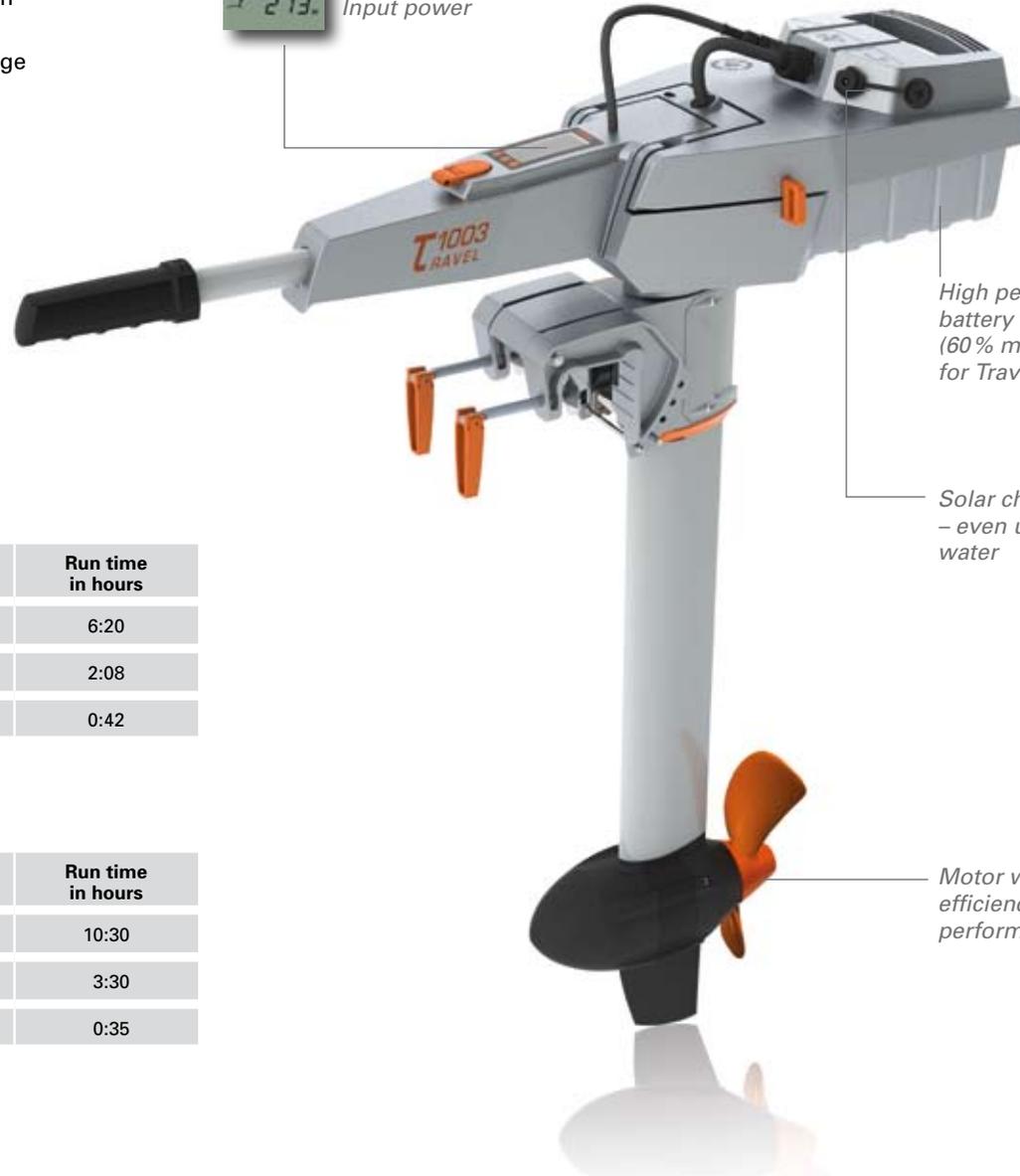
85	Battery charge status
113	Remaining range
45	Speed over the ground
273	Input power

Audible alarm countdown: as soon as the remaining battery charge reaches 30%, 20% and 10% a warning signal is given

High performance lithium battery with integrated GPS (60% more battery capacity for Travel 1003)

Solar charging possible – even underway on the water

Motor with highest efficiency for superior performance and range



TRAVEL 503 with integrated battery (29.6 V / 11 Ah)

Inflatables, dinghies, yachts up to 750 kg

	Speed in knots	Range in nm	Run time in hours
Slow speed	1.5 - 2.0	9.6 - 12.8	6:20
Half throttle	2.5 - 3.0	5.3 - 6.4	2:08
Full throttle	3.6 - 4.0	2.6 - 2.8	0:42

TRAVEL 1003 with integrated battery (29.6 V / 18 Ah)

Inflatables, dinghies, daysailers up to 1.5 tons

	Speed in knots	Range in nm	Run time in hours
Slow speed	1.5 - 2.0	15.0 - 20.0	10:30
Half throttle	2.5 - 3.0	8.5 - 10.5	3:30
Full throttle	4.5 - 5.0	2.5 - 2.8	0:35

Which Travel for which boat?

Both models are suitable for inflatables and other small boats. For sailboats, we recommend the Travel 503 for boats up to 750 kg. The Travel 1003 easily propels up to 1.5 tons. Both models consume comparable levels of energy at the same speed. The Travel 1003 has a higher maximum power and offers over 60% more battery capacity, providing longer range. Both models are available in long and short shaft versions.

Battery charging:

From fully discharged, charging with the charger provided takes approximately 9 hours (Travel 503) and 15 hours (Travel 1003).

Lithium battery life expectancy:

The life of a lithium battery is barely affected by charging cycles. It has no memory effect. Therefore, the battery can be fully recharged after every trip, regardless of the charge status shown on the display. Generally, a loss of capacity of 4% per year can be expected. Ageing is accelerated if the battery is exposed to high temperatures for long periods while fully charged.

Our recommendation: the battery can be used in very hot conditions, but should be stored in a cool place away from the sun when not in use. 8 years after date of production, your battery needs to be inspected by a service center.

Integrated battery specifications:

The Travel 503 battery has a capacity of 320 Wh and the Travel 1003 provides 520 Wh. For the Travel 503, this gives a rating of 11 Ah at 29.6 V and the Travel 1003, 18 Ah at 29.6 V

Solar charging:

The batteries of the Travel 503 and 1003 models can be charged by a solar charger, even when the motor is in use on the water. The battery is compatible with solar chargers with voltages between 24 and 60 V and a maximum charging current of up to 4 A. The simplest solution is to charge via our 45 W Solar panel – pages 28/29.

Charging from the on-board power supply:

To charge the battery from an on-board power supply, an inverter is required to convert the voltage to between 100 and 240 V (standard power outlet voltages that can vary from country to country). High-efficiency inverters are available commercially at low cost.

Safety:

The motor only runs when the magnetkey is placed in position on the throttle and stops immediately when the pin is removed. For safety reasons, the magnetkey should be attached to the wrist or the life vest. If the kayak capsizes, the motor shuts off automatically to avoid possible injury.

Temperature protection:

In warmer climates, you may experience a reduction in power after 15-30 minutes running at full throttle. This is not a defect, but the integrated temperature protection mode that ensures that the battery does not reach extreme temperatures. Temperature protection mode is indicated by a thermometer in the display.

Limited warranty: 2 years

Technical data and ordering information: Pages 30/31

Models

TRAVEL 503 S
TRAVEL 503 L
TRAVEL 1003 S
TRAVEL 1003 L

Accessories



Spare battery,
Travel 503 (320 Wh)



Spare battery,
Travel 1003/503 (520 Wh)



Solar panel 45 W



Remote throttle (incl.
1.5 m and 5 m connect-
ing cable)



Throttle cable extension,
Travel, Ultralight and
Cruise, 1.5 m/5 m



Motor cable extension,
Travel and Ultralight



Charger for spare
battery, Travel and
Ultralight



Long tiller arm



Spare propeller v8/p350
(for Travel 503)



Spare propeller v9/p790
(for Travel 1003)



CRUISE 2.0T/4.0T **NEW**

CRUISE 2.0T



up to
6.5 knots



5 HP
equivalent



17.5 kg (S)/
18.4 kg (L)



waterproof
IP 67



on-board computer
with GPS

CRUISE 4.0T

up to
12 knots

8 HP
equivalent

18.3 kg (S)/
19.2 kg (L)

waterproof
IP 67

on-board computer
with GPS

Come on, let's Cruise ...

Hold tight! The new generation of tiller-controlled electric outboards is casting off. Faster, stronger and more attractive. They get lightweight tenders nicely on the plane and move sailboats up to 4 tons elegantly across the sea. Unlike their predecessors, both of these compact power packs are now fully protected against complete immersion and, like all Torqeedo outboards, are equally suitable for cruising on lakes and oceans. Depending on horsepower, the T models require one or two of our power batteries

that can be easily connected using the supplied cables. Plug and go, so to speak. The superior overall efficiency remains: the Cruise gets more power and range from a battery bank than any other outboard. And despite its immense power, it remains a flyweight – at 17.8 kg, the 2.0T model can still be shouldered easily and the extra 300 g that the 4.0T weighs is hardly worth mentioning. Enough said. Dive in with our video at www.torqeedo.com and come along for the ride!

“When it comes to Torqeedo, what can we say? This is a whole new concept: quiet, no fumes, lightweight, environmentally friendly. Really high-tech features on this motor include a GPS-based monitoring system [...]”

Cruising World (USA)



CRUISE 2.0T/4.0T **NEW** –

key features:

- more power per watt: superior overall efficiency, more range from a limited battery supply than any other outboard
- minimum weight, maximum power
- completely waterproof (IP 67)
- On-board computer with GPS based calculation of remaining range

Tiller Display – provides information about:

85%	Battery charge status
113	Remaining range
4.5	Speed over the ground
273	Input power



Ininitely variable forward / reverse drive

25 mm² cable including fuse and main switch

Motor with highest efficiency for superior performance and range

CRUISE 2.0T with 2x12V/ 200 Ah AGM battery (battery weight approx. 120 kg; can also be powered by Power 26-104)

Dinghies, sailboats up to 3 tons

	Speed in knots	Range in nm	Run time in hours
Slow speed	ca. 1.5	ca. 165.0	110:00
Half throttle	ca. 2.6	ca. 43.0	16:30
Full throttle	5.0 - 6.5	10.0 - 13.0	2:00

CRUISE 4.0T with 2 x Power 26-104 (battery weight 50 kg; can also be powered by 4 AGM batteries)

Motor boats and sailboats up to 4 tons

	Speed in knots	Range in nm	Run time in hours
Slow speed	ca. 3.0	ca. 24.0	8:00
Half throttle	ca. 4.5	ca. 13.5	3:00
Full throttle	6.0 - 12.0*	7.0 - 13.0*	1:10

* Top speeds are planing speeds for light boats

Which Cruise for which boat?

Both models are suitable for inflatables and other small boats. For dinghies and sailboats up to 3 tons, we recommend the Cruise 2.0T; the Cruise 4.0T easily propels up to 4 tons.

Battery supply:

The Cruise 2.0T requires a battery voltage of 24 V. It can be powered by a Power 26-104 (see pages 24 - 27). In this case, the battery bank weighs only 25 kg. Alternatively, it can be powered by at least 2 lead-gel or AGM batteries. In this case, we recommend a battery capacity of at least 180 Ah. Because lead-gel and AGM batteries can't supply higher currents very well, the battery bank capacity should include several reserves.

The Cruise 4.0T requires a battery voltage of 48 V. It can be powered by a Power 26-104 (see pages 24 - 27). In this case, the battery bank weighs only 50 kg. Alternatively, it can be powered by at least 4 lead-gel or AGM batteries. In this case, we recommend a battery capacity of at least 180 Ah for the reasons given above.

On-board computer:

The on-board computer integrated in the tiller analyses and combines information from the motor, batteries and the GPS. The motor consumption and GPS speed data are always precise. The battery information is equally precise when the Cruise is powered by the Power 26-104 because both products communicate with each other. If the Cruise is powered by other batteries, the battery charge and remaining range indicators rely on estimates derived from the battery information entered in the system's set-up menu during initial installation.

Limited warranty: 2 years

Technical data and ordering information: Pages 30/31

Models

CRUISE 2.0 TS
CRUISE 2.0 TL
CRUISE 4.0 TS
CRUISE 4.0 TL

Accessories



Power 26-104



Charger 350 W for Power 26-104



Throttle cable extension, Travel, Ultralight, Cruise T and Cruise R, 1.5 m/5 m



Motor cable extension Cruise models



Replacement propeller v19/p4000 (fast, efficient, weedless)



Replacement propeller v35/p4000 (for high speed applications)



Replacement propeller v8/p350 (not as fast or efficient, but more thrust)



Longer tiller



CRUISE 2.0R/4.0R

CRUISE 2.0R



up to
12 km/h



5 HP
equivalent



16.0 kg (S)/
16.9 kg (L)



waterproof
IP 67



on-board computer
with GPS

TWIN CRUISE 4.0R

up to
26 km/h

15 HP
equivalent

33.6 kg (S)/
35.4 kg (L)

waterproof
IP 67

on-board computer
with GPS

I feel good, I knew that I would ...

The stillness of the water; the sound of the wind; the play of the waves. If you love cruising on water, the Cruise R models are for you. Because you can experience everything a boater enjoys – but you're cleaner and quieter under way with much more convenience and maximum performance and efficiency.

The Cruise R models have become the preferred outboards in the high-end sector. Not only because, like all the models in the Torqeedo product range, they deliver the highest overall efficiency in their performance class, but also because they are so well thought out that you always feel confident about battery capacity and range. Not completely irrelevant when you're motoring across the water

at full throttle. In the throttle display, you can see all relevant information at a glance: battery charge status, GPS-based speed over ground and real-time information about remaining range.

Want more? More speed? More range? Here you are! We'll add something extra – with the Twin Cruise R. It brings you faster and farther over the water. And on the plane. Boat experts in the trade press have already tried it:

"... within 14 seconds, the triple-blade plastic propeller had me up to 13.4 knots. That's almost 25 km/h."

Bootshandel (Germany)

When are you going to try it?

"... full four hours on the lake, but I needn't worry about the range: At half throttle at 5.9 knots, I can still go on for 39.4 kilometres."

Bootshandel (Germany)



CRUISE 2.0R/4.0R –

key features:

- more power per watt: superior overall efficiency, more range from a limited battery supply than any other outboard
- minimum weight, maximum power
- the Twin Cruise combines higher speed and greater range for electric planing boats and gets larger boats moving efficiently
- integrated display with information about battery status, GPS-based speed and remaining range
- completely waterproof (IP 67)

CRUISE 2.0R with 2 x 12 V / 200 Ah AGM batteries (Battery weight approx. 120 kg, can also be powered by a Power 26-104)

Dinghies and yachts up to 3 tons

	Speed in km/h	Range in km	Run time in hours
Slow speed	ca. 2.5	ca. 275	110:00
Half throttle	ca. 5.0	ca. 80	16:00
Full throttle	9.2 - 12	18.5 - 24.1	2:00

CRUISE 4.0T with 2 x Power 26-104 (battery weight 50 kg; can also be powered by 4 AGM batteries)

Motor boats and yachts up to 4 tons

see page 18 CRUISE 4.0T

TWIN CRUISE 4.0R with 4 x Power 26-104 (Battery weight 100 kg; can also be powered by 8 AGM batteries) and propeller v30/p4000

18' carbon centre-console boat, weight 272 kg

	Speed in km/h	Range in km	Run time in hours
Slow speed	11	39.4	3:20
Half throttle	16	32.2	2:00
Full throttle	26	27.8	1:05

Throttle Display – provides information about:

85	Battery charge status
113	Remaining range
45	Speed over the ground
273	Input power



Which Cruise R for which boat?

Choose freely between both Cruise R models for smaller boats. The thrust from the Cruise 2.0R is more than sufficient for dinghies and sailboats up to 3 tons. The Cruise 4.0R propels boats up to 4 tons.

Battery supply:

The **Cruise 2.0R** requires a battery voltage of 24 V. It can be powered by a Power 26-104 (see pages 24 - 27). In this case, the battery bank weighs only 25 kg. Alternatively, it can be powered by at least 2 lead-gel or AGM batteries. In this case, we recommend a battery capacity of at least 180 Ah. Because lead-gel and AGM batteries can't supply higher currents very well, the battery bank capacity should have several reserves ready.

The **Cruise 4.0R** requires a battery voltage of 48 V. It can be powered by a Power 26-104 (see pages 24 - 27). In this case, the battery bank weighs only 50 kg. Alternatively, it can be powered by at least 4 lead-gel or AGM batteries. In this case, we recommend a battery capacity of at least 180 Ah for the reasons given above.

The **Twin Cruise 2.0R** requires a battery voltage of 2 x 24 V. (24 V for each motor), i.e. two Power 26-104 (one battery per outboard). In this case, the battery bank weighs approx. 50 kg. Alternatively, it can be powered by at least 4 lead-gel or AGM batteries. In this case, we recommend a battery capacity of at least 180 Ah (for each motor).

The **Twin Cruise 4.0R** requires a battery voltage of 2 x 48 V. (48 V for each motor). It can be powered by four Power 26-104 (2 for each outboard). In this case, the battery bank weighs approx. 100 kg. Alternatively, it can be powered by at least 8 lead-gel or AGM batteries – which weigh, however, 480 kg.

On-board computer, all Cruise R models:

The on-board computer integrated in the throttle analyses and combines information from the motor, batteries and the GPS. The motor consumption and GPS speed data are always precise. The battery information is equally precise when the Cruise is powered by the Power 26-104 because both products communicate with each other. If the Cruise is powered by other batteries, the battery charge and remaining range indicators rely on estimates derived from the battery information entered in the system's set-up menu during initial installation.

Twin Cruise installation:

A Twin Cruise outboard system consists of two Standard Cruise models (2.0R or 4.0R) as well as the Twin Cruise Control Set, which consists of a dual throttle and a connection bar for linking two Cruise outboards to the same standard steering system.

Standard installation with the Twin Cruise Control Set requires minimum transom width of 76 cm (the length of the tie bar for connecting two motors is 56 cm and included in delivery).

Limited warranty: 2 years

Technical data and ordering information: Pages 30/31

Models

- CRUISE 2.0 RS
- CRUISE 2.0 RL
- CRUISE 4.0 RS
- CRUISE 4.0 RL
- TWIN CRUISE 2.0 R
- TWIN CRUISE 4.0 R

Accessories



Power 26-104



Charger for Power 26-104



Twin Cruise Control Set (requires two Cruise Models)



Throttle cable extension Travel, Ultralight and Cruise, 1.5 m/ 5 m



Motor cable extension Cruise models



Replacement propeller v19/p4000 (fast, efficient, weedless)



Replacement propeller v35/p4000 (for high speed applications)



Replacement propeller v8/p350 (not as fast or efficient, but more thrust)



POWER 26-104



2,685 Wh



25 kg



107 Wh/kg



577.5 x 218.5
x 253.5 mm



waterproof
IP 67



00101

communication with
Cruise on-board computer

You've got the Power ...

Good. Better. Power 26-104. You can rely on this lithium battery. Always. In every case. Its unique intelligence is reflected in a comprehensive protection concept against short circuits, overloads, deep discharge and wrong polarity. And its performance couldn't be better: 2,685 Wh for only 25 kg battery weight (107 Wh/kg). If you're now thinking, "What does that cost?" then you haven't reckoned on us. 0.93 Euro per Wh – that's probably the best price worldwide for a branded lithium battery. Compare it yourself!

And the safety standard of this high performance battery? Equally unbeatable: safe battery chemistry, precise and clean production processes on the part

of the cell manufacturer (made in Japan), steel-cylinder cell housing with 4 hardware safety mechanisms for each of the 336 cells, and leading-edge electronic battery management system.

With these high quality standards, you can do what you want on the water (and not only there) with the Power 26-104. As it is designed for marine use this battery is completely waterproof (IP 67) and in case of flooding, the voltage is shut off from the poles to prevent electrolytic corrosion and the formation of explosive gas.

What more could you ask for? Get out on the water – and enjoy the extra power on board!

"Lithium batteries are the technology of choice when it comes to providing more energy from smaller, lighter battery banks. Now the leader in electric outboards, Torqeedo, sets new standards with its innovative Power 26-104 lithium manganese battery."

navagear.com (USA)



POWER 26-104 –

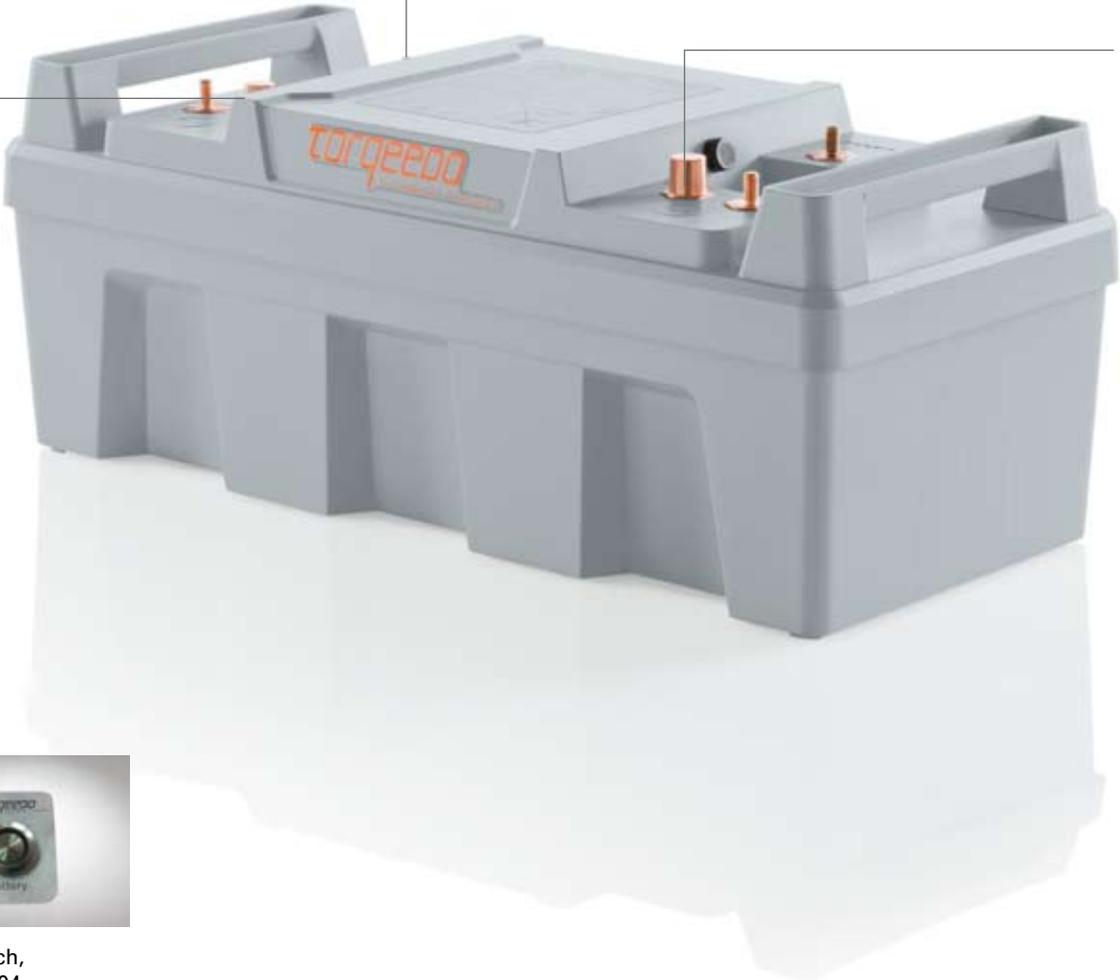
key features:

- unique intelligence
- better performance
- superior price-performance ratio
- outstanding safety
- completely waterproof (IP 67)

Data ports for communication – e.g. with the Cruise outboard’s on-board computer or for other display devices

2 positive and 2 negative poles enable convenient installation of battery banks.

Integrated battery management system using the very latest technology with many protection functions



Accessories



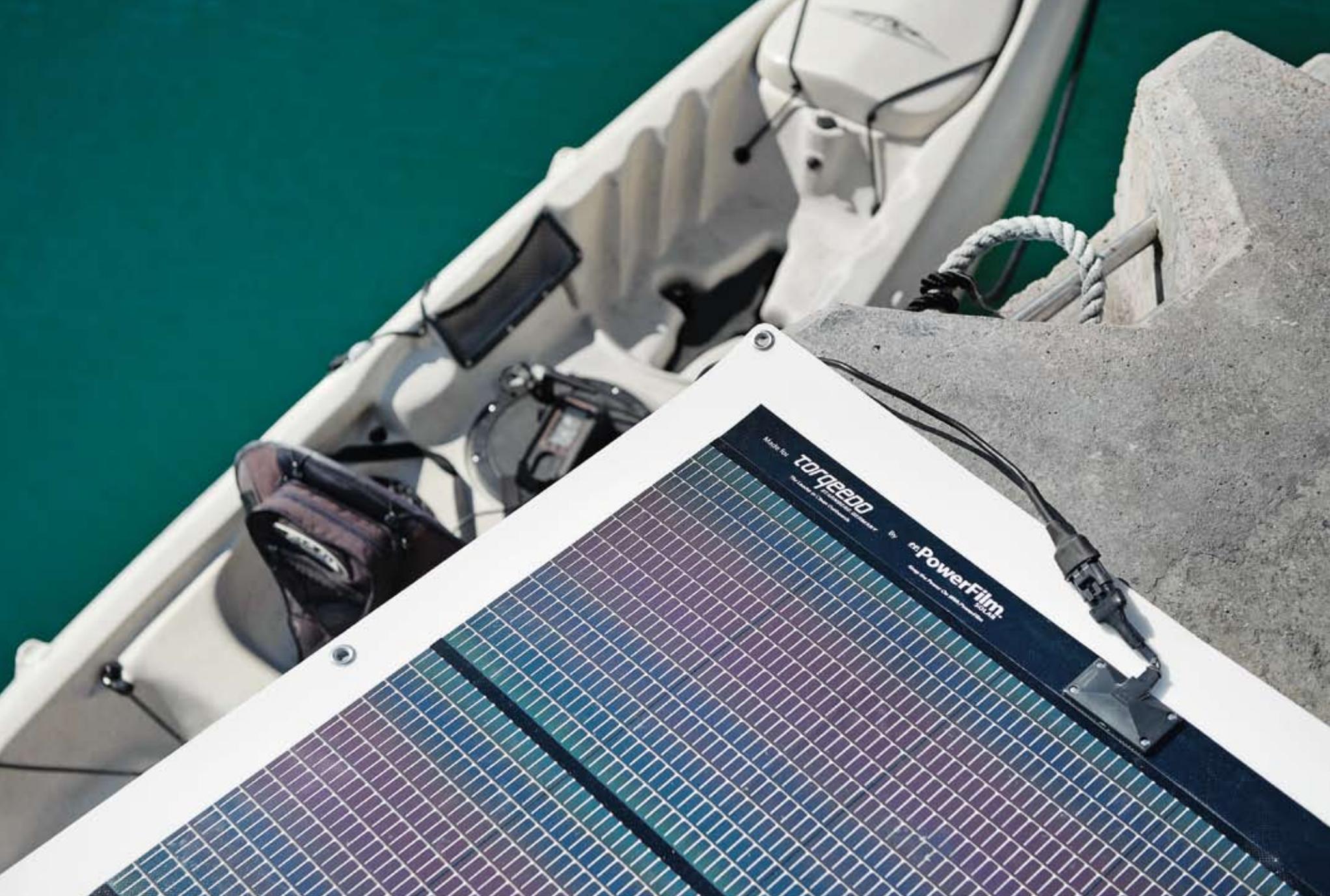
Charger 350 W for Power 26-104



On/off switch, Power 26-104

Technische Daten		
General characteristics		
Capacity	2,685 Wh	
Nominal voltage	25.9 V	
Final charging voltage	29.05 V	
Final charging current	21.0 V	
Nominal charge	104 Ah	
Maximum discharge rate (A)	180 A	Safety function, not a starter battery
Maximum discharge rate (W)	4,500 W	
Weight	25 kg	
Dimensions	577.5 x 218.5 x 253.5 mm	
Volume	32 l	
Battery chemistry	Li NMC	
Benchmark information		
Energy density (Weight)	107 Wh/kg	
Energy density (Volume)	84 Wh/l	
Price-performance ratio	0.93 EUR/Wh	
Power density (Weight)	180 W/kg	
Power density (Volume)	141 W/l	
Lifetime data		
Cycle lifetime	800 cycles at 100% deep discharge at 25 °C	results in ca. 25% capacity loss
Average capacity loss per year	Ca. 4% at 25 °C ambient temperature	
Usage information		
Cell operating temperature	-20° to +60 °C	Battery protects itself
Cell charging temperature	0° to +55 °C	Battery protects itself
Storage temperature	-30° to +55 °C	
Typical storage time at 50% SOC	1 year	
Max. Connections	2S8P or 1S16P	for larger battery banks refer to Torqeedo
Max. quick charge	100 A	Charging time < 1.2 hours
Protection class	IP 67	Waterproof, can be submerged up to 1 meter for 30 minutes without damage

Battery composition		
Number of cells	336	
Cell housing	Steel cylinder safety cell	
Capacity per cell	2.25 Ah	
Nominal voltage per cell	3.7 V	
Cell connection	7s48p	
Battery management system and safety		
On-Off switch	Yes	
Cell balancing	Yes	Increases the lifetime of the battery
High current and short circuit protection	Yes	4 level safety cut-off mechanism to protect against short circuit and overcurrent
Deep discharge protection	Yes, Cutoff at < 2.7 V per cell, Charge protection at < 2 V per cell	
Protection against incorrect charging	Yes	3 protection levels against overcharging
Protection against wrong polarity connection	Yes	
Individual cell voltage monitoring	Yes	
Current Interruption Device for each cell	Yes	
Safety vent for each cell	Yes	
Poly switch for each cell	Yes	
Cell temperature monitoring	Yes	
PCB temperature monitoring	Yes	
Automatic shutdown in case of submersion	Yes	
Information system		
Interface	RS485	
Electronic battery identification	Yes	Important for connection of multiple batteries into battery banks
Data logging	Yes	Important for warranty information



SOLAR PANEL 45 W



40 - 45 Watt



Ultralight 403 &
Travel 503/1003



unrolled 147.3 x 91.4 cm,
rolled up 100.0 x 16.0 cm



1.27 kg



waterproof
IP 67



00101
communication with
on-board computer

Let the sun shine ...

Sunshine! Wonderful prospects for a day on the water. Whether it's a lake or the sea – just get out and enjoy it for as long as possible. Because the sun is good for the soul. And now it's good for your outboard, too. With our emission-free boat motors that keep environmental impact to a minimum, it's only natural that we also offer you an alternative charging option and it fits perfectly to the Torqeedo concept. With the Solar panel 45 W, you can top up the batteries of the Ultralight and Travel models without complication and everywhere from natural resources – even on the water while you're underway. Sun, sun, sun ... here we come!



To offer this modern alternative, Torqeedo joined forces with PowerFilm – a renowned manufacturer of thin film solar cells. PowerFilm modules have proven themselves in rigorous tests and are, in our opinion, well-suited for use on water.

SOLAR PANEL 45W –

key features:

- simple plug-n-play charging for Travel and Ultralight models. No separate inverter or external charger necessary
- can be rolled up with protective casing for really easy transport and storage
- extremely weatherproof: for all weather conditions. Successfully tested in full salt water immersion
- extremely durable – even under extreme conditions
- high efficiency performance even in cloudy or partially shaded conditions
- environmentally friendly materials

Output power: Under typical sun conditions in North America and Europe, 40-45 W output can be expected

Cell type: Amorphous Silicium

Efficiency: Cell Efficiency 7.0%, module efficiency 5.5%

Voltage: open circuit voltage 44 Volts

Charging time: The 320 Wh battery of the Ultralight 403 and Travel 503 will be charged from 0 to 100% in approx. 8 hours; the 520 Wh battery of the Travel 1003 models will be charged from 0 to 100% in approx. 13 hours.

Waterproof charging: The connections between the Solar panel and Ultralight and Travel batteries are completely waterproof for charging on the water without any risk of electrolytic corrosion. The panel has undergone complete immersion tests, however immersion should be avoided.

Limited warranty: 80% of specified performance after 2 years.

Technical data and ordering information: Pages 30/31



Technical Data and Ordering Information

OUTBOARD TECHNICAL DATA

	ULTRALIGHT 403	TRAVEL 503 S/L	TRAVEL 1003 S/L	CRUISE 2.0 TS/TL	CRUISE 4.0 TS/TL	CRUISE 2.0 RS/RL	CRUISE 4.0 RS/RL	TWIN CRUISE 2.0 R	TWIN CRUISE 4.0 R
Input power in watts	400	500	1,000	2,000	4,000	2,000	4,000	4,000	8,000
Propulsion power in watts	180	220	480	1,120	2,240	1,120	2,240	2,240	4,480
Comparable petrol outboards (propulsive power)	1 HP	1.5 HP	3 HP	5 HP	8 HP	5 HP	8 HP	8 HP	15 HP
Comparable petrol outboards (thrust)	2 HP	2 HP	4 HP	6 HP	9.9 HP	6 HP	9.9 HP	12 HP	20 HP
Maximum overall efficiency in %	45	44	48	56	56	56	56	56	56
Static thrust in lbs*	33	40	68	115	189	115	189	230	378
Integrated battery	320 Wh Li-Ion	320 Wh Li-Ion	520 Wh Li-Ion	-	-	-	-	-	-
Nominal voltage	29.6	29.6	29.6	24	48	24	48	24	48
Final charging voltage	33.6	33,6	33.6	-	-	-	-	-	-
Total weight in kg	7.4	12.7 (S) / 13.3 (L)	13.4 (S) / 14.0 (L)	17.5 (S) / 18.4 (L)	18.3 (S) / 19.2 (L)	16.0 (S) / 16.9 (L)	16.8 (S) / 17.7 (L)	32.0 (S) / 33.8 (L)	33.6 (S) / 35.4 (L)
Motor weight without battery in kg	4.5	8.9 (S) / 9.5 (L)	8.9 (S) / 9.5 (L)	-	-	-	-	-	-
Weight of integrated battery in kg	2.9	4.0	4.5	-	-	-	-	-	-
Shaft length in cm	45	62.5 (S) / 75 (L)	62.5 (S) / 75 (L)	62.5 (S) / 75.5 (L)	62.5 (S) / 75.5 (L)	62.5 (S) / 75.5 (L)	62.5 (S) / 75.5 (L)	62.5 (S) / 75,5 (L)	62.5 (S) / 75.5 (L)
Standard propeller (v = speed in km/h at p = power in watts)	v10/p350	v8/p350	v9/p790	v19/p4000	v19/p4000	v19/p4000	v19/p4000	v19/p4000	v19/p4000
Alternative propeller options	-	v9/p790	v8/p350	v8/p350 v30/p4000	v8/p350 v30/p4000	v8/p350 v30/p4000	v8/p350 v30/p4000	v8/p350 v30/p4000	v8/p350 v30/p4000
Maximum propeller speed in rpm	1,200	700	1,200	1,300	1,300	1,300	1,300	1,300	1,300
Control	Remote throttle	Tiller	Tiller	Tiller	Tiller	Remote throttle	Remote throttle	Remote throttle	Remote throttle
Steering	Provision for connecting to kayak rudder, lockable	360°; lockable	360°; lockable	360°; lockable	360°; lockable	Provision for connecting to standard remote steering, lockable	Provision for connecting to standard remote steering, lockable	Provision for connecting to standard remote steering, lockable	Provision for connecting to standard remote steering, lockable
Tilting device	Manual with grounding protection	Manual with grounding protection	Manual with grounding protection	Manual with grounding protection	Manual with grounding protection	Manual with grounding protection	Manual with grounding protection	Manual with grounding protection	Manual with grounding protection
Trim device	-	Manual, 4-step	Manual, 4-step	Manual, 4-step	Manual, 4-step				
Stepless forward/reverse drive	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Integrated on-board computer with display	Yes	Yes	Yes	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.

ORDERING INFORMATION

	Part no.	Product	Description
ULTRALIGHT	1403-00	Ultralight 403	Ultralight outboard, 1 HP equivalent, with integrated 320 Wh high performance lithium battery, including charger, remote throttle, GPS-based range calculation, multifunction display, on/off magnetkey and drybag
	1413-00	Spare battery Ultralight 403	High performance lithium battery with integrated GPS receiver, 320 Wh, 29.6 V, 11 Ah
	1140-00	Travel 503 S	High efficiency outboard with integrated 320 Wh high performance lithium battery, 1.5 HP equivalent, including GPS-based range calculation, integrated information display, charger, short shaft version
TRAVEL	1141-00	Travel 503 L	As part no. 1140-00, but with long shaft
	1142-00	Travel 1003 S	High efficiency outboard with integrated 520 Wh high performance lithium battery, 3 HP equivalent, including GPS-based range calculation, with integrated information display and charger, short shaft version
	1143-00	Travel 1003 L	As part no. 1142-00, but with long shaft
	1144-00	Spare battery Travel 503	High performance lithium battery with integrated GPS receiver, 320 Wh, 29.6 V, 11 Ah
	1145-00	Spare battery Travel 003/503	High performance lithium battery with integrated GPS receiver, 520 Wh, 29.6 V, 18 Ah
	1220-00	Cruise 2.0 TS	High efficiency outboard, 5-6 HP equivalent. With tiller control, integrated on-board computer with GPS-based range calculation, 25 mm ² cable set (3 m) including fuse and main switch, short shaft version
	1221-00	Cruise 2.0 TL	As part no. 1220-00, but with long shaft
CRUISE	1222-00	Cruise 4.0 TS	High efficiency outboard, 8-9.9 HP equivalent. with tiller control, integrated on-board computer with GPS-based range calculation, 25 mm ² cable set (3 m) including fuse and main switch, short shaft version
	1223-00	Cruise 4.0 TL	As part no. 1222-00, but with long shaft
	1209-00	Cruise 2.0 RS	High efficiency outboard, 5-6 HP equivalent. Includes remote steering connector, remote throttle, integrated on-board computer with GPS-based range calculation, 25 mm ² cable set (3 m) including fuse and main switch, short shaft version
	1210-00	Cruise 2.0 RL	As part no. 1209-00, but with long shaft
	1211-00	Cruise 4.0 RS	High efficiency outboard, 8 – 9.9 HP equivalent. Includes remote steering connector, remote throttle, integrated on-board computer with GPS-based range calculation, 25 mm ² cable set (3 m) including fuse and main switch, short shaft version
	1212-00	Cruise 4.0 RL	As part no. 1211-00, but with long shaft
	1217-00	Twin-Cruise Control Set	For twin applications with Cruise 2.0 R and 4.0 R models, consists of aluminium twin throttle lever with dual info display and 56 cm tie bar for connecting the two motors

	Part no.	Product	Description
OUTBOARD ACCESSORIES	1130-00	Solar panel 45 W	Solar module, can be rolled up, extremely weatherproof, built especially for use on water, plug-n-play connections for watertight charging of the Ultralight and Travel 503/1003 models, including protective case for simple transport and storage
	1912-00	Spare propeller v10/p350	For the Ultralight 402 and 403
	1917-00	Spare propeller v9/p790	For the Travel 1003
	1915-00	Spare propeller v8/p350	For Cruise models with production year 2009 onwards (serial numbers >5000), slower speed, lower efficiency but higher thrust
	1916-00	Spare propeller v19/p4000	For Cruise models with production year 2009 onwards (serial numbers >5000), fast, efficient, weedless
	1923-00	Spare propeller v30/p4000	For Cruise models with production year 2009 onwards (serial numbers >5000), for planing applications with lighter boats.
	1901-00	Spare propeller v8/p350	For the models Travel 401, 801, 503, BaseTravel models, and Cruise models of production years 2006-2008 (serial numbers <5000)
	1918-00	Remote throttle for Travel 503/1003	Allows installation of Travel 503/1003 models with remote throttle instead of tiller, including integrated display with information about battery status, GPS-based speed and remaining range calculation, including 1.5 m and 5 m connection cable between motor and throttle
	1919-00	Long throttle arm	Longer tiller handle, 60 cm long, for Travel and Cruise T models
	1920-00	Motor cable extension Travel and Ultralight models	Extension for cable connection between battery and motor for Ultralight 403 and Travel 503/1003 models. Allows for longer distance (2 m) between battery and motor, with waterproof plug/connectors
	1204-00	Motor cable extension Cruise models	Extension for Cruise cable set, 2 m long, with high current plugs
	1921-00	Remote throttle cable extension, 1.5 m	Extension cable connection for Travel 503/1003, Ultralight and Cruise T as well as Cruise R models. Allows for longer distance between the throttle/tiller and motor
	1922-00	Remote throttle cable extension, 5 m	Extension cable connection for Travel 503/1003, Ultralight and Cruise T as well as Cruise R models. Allows for longer distance between tiller or throttle and motor/battery
	1127-00	Charger for Travel 503, 1003 and Ultralight 403 spare batteries	40 watt charger (12 V, 3.3 A), for power outlets between 100-240 V and 50-60 Hz
	POWER	2103-00	Power 26-104
2206-00		Charger 350 W for Power 26-104	Charge capacity 350 W, charges Torqeedo Power 26-104 from 0-100% in 11 hours, waterproof to IP 65
2304-00		On/off switch for Power 26-104	Switch to activate and deactivate Power 26-104, IP 67, with LED indicator displaying on/off status, required if Power 26-104 is used without Cruise outboards.



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