

**ROTINOR**

# ROTINOR BLACK SHADOW

Diver Propulsion Device





## Extreme high performance diving scooter

The ROTINOR BLACK SHADOW is an extreme high-performance diving scooter for professional purposes. With its patented E-jet power system, the high-power drive of the RBS is unrivalled.

Virtually silent and absolutely emission-free the electric jet-stream system works on the principle of water displacement. Water is sucked in by the powerful rotating impeller and forced out in the jet channel under high pressure. The thrust developed by this process propels the RBS forwards in superior style. 30 high-performance accumulators form the powerhouse of the RBS. The powerful motor performance of

8 HP is controlled by 10 power levels. Hereby the operator can alternate individually between slow or high speed manoeuvres through the water. The RBS can be steered down to a depth of 60 m, thus making it ideally suitable for all kinds of underwater missions and special operations.

The hydrodynamic design of the RBS lends the diving scooter a high degree of agility in the water. All steering and diving manoeuvres are carried out simply by shifting the weight of the body. The specially developed harness system enables the operator to easily control the enormous thrust of over 70 kg.

# ROTINOR BLACK SHADOW

High performance technology



**Optional LED headlights**  
Featuring three brightness level settings.

**Compass sensor**

**Sonar head**

**Diving depth sensor**

**Piezo sensors**  
Switched and operated through the use of modern piezo sensors.

**Sonar system**  
For avoiding objects during submerged driving.

**Compass technology**  
To assist with orientation and navigation for all underwater missions.

**Operation display**  
To provide all important operating information.

**Attachment mechanism**  
To secure the operator harness system.

**Additional attachment mechanism**  
For additional diver towing.

**Threaded inserts**  
For additional equipment attachment.



## Cutting-edge technology

The RBS represents advanced, cutting-edge technology through and through. The operator steers his innovative craft using two intelligent Controlgrips featuring piezo technology.

The drive mechanism is activated via the Trigger at the left or right Controlgrip. Applying light pressure to the green sensor accelerates the RBS in continuous powerful thrusts until the desired speed is achieved. In contrast, the scooter is slowed down through reduced propulsion by pressing the red sensor. Should the situation arise, an emergency stop can be brought about simply by letting go of the Trigger. Two additional piezo buttons make it possible to program a set-up menu to meet individual requirements. This also includes the setting of a maximum diving depth. This important safety function reliably prevents a predetermined

depth from being exceeded. The central cockpit is placed perfectly in the operator's field of vision. The illuminated TFT displays show all relevant data relating to the operation such as the current power, accumulator charge state, remaining operating time, diving depth, water temperature and current time.

Moreover, the RBS is equipped with state-of-the-art navigation and sonar technology. The sonar display provides current sonar images of the surroundings and informs the operator of any obstacles in the water. The activated navigation system enables the user to steer the RBS with ease by means of the digital bearing scale and target marker. If required, the powerful LED headlights with three brightness settings can be activated for special operation scenarios.

## E-JET ENGINE

Extraordinary efficiency

The mechanism used is a high-torque synchronized drive unit featuring a micro-processor-controlled 3-phase sinus power management system. Using cutting-edge technology, this motor develops the ideal amount of torque with extraordinary efficiency.

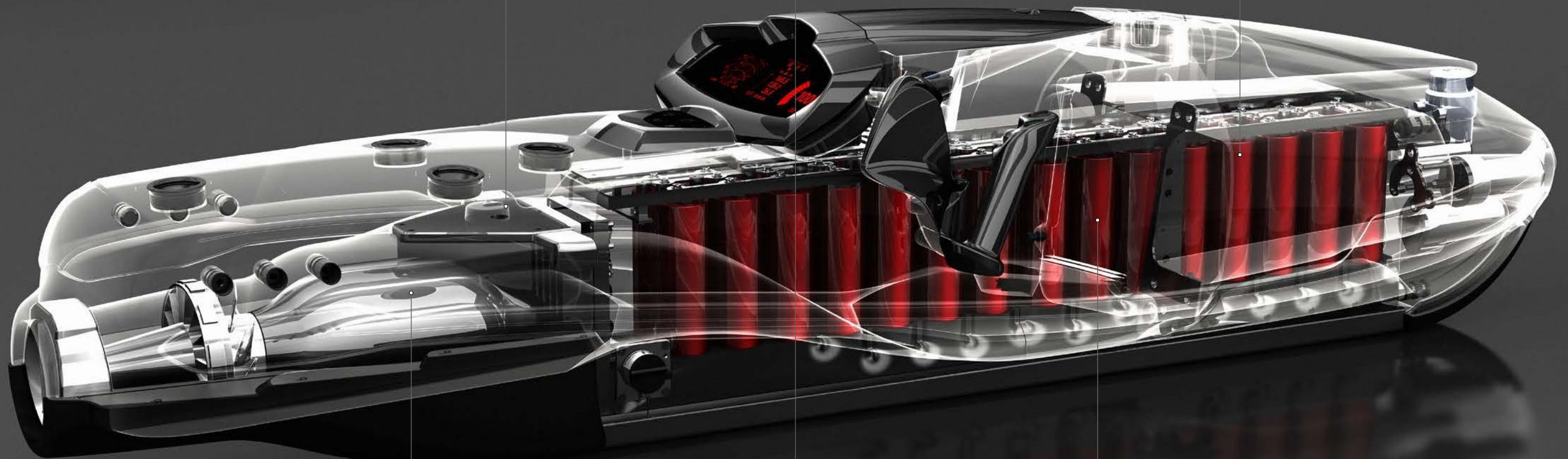
The uncompromising use of quality components and special high-grade coatings has made this motor extremely robust and completely maintenance-free. During an endurance test over 10,000 hours of operation at full load, the drive mechanism demonstrated absolutely no breakdowns or reduction in performance.

## THE ENERGY SYSTEM

High-performance accumulators

The energy for the E-jet power system comes from exceptionally efficient High-Energy Li-Ion accumulators. These large and special high-performance accumulators form a high-quality component in the overall propulsion concept of the ROTINOR BLACK SHADOW.

Li-Ion is a pioneering technology and a product of space research. These specially-developed long lasting accumulators with a life cycle of approx. 18 years are presently used to power earth-orbiting satellites. After being charged 2,000 times, the High-Energy Li-Ion accumulator cells demonstrated no significant reduction in performance and no memory effect.





## Multifunctional over great distances

There is no comparison to the RBS innovative drive technology. The charging concept and the highly efficient drive make operating times of over 6 hours possible in practical applications, thereby enabling operating distances in excess of 30 km to be achieved.

The RBS is an absolute powerhouse and the epitome of strength and performance. Professional users are able to overcome great distances with this craft, while conserving their own strength and energy. The increased performance as a result thereof leads to optimal conditions for any special mission. Furthermore, the sustained powerful jet engine of the RBS can transport several divers simultaneously over

long distances. Additional attachment devices enable further divers to be towed by means of specially designed T-bar belts. As an extremely compact and portable submersible, the RBS can be transported to the place of operation without any difficulty. It was developed for a multitude of scenarios, such as being made available from the air, launches on the surface of the water and application from a submarine.

Its cutting-edge technology, its unsurpassed high performance, the simplicity of the operating concept and its outstanding reliability make the ROTINOR BLACK SHADOW the internationally unrivalled partner for professional users on special missions.



## ROTINOR Para-Drop Deployment

ROTINOR Black Shadow is available with the capability to be launched safely and accurately by parachute drop.

The parachute drop harness has been specifically designed so that the RBS can be deployed from helicopters or fixed wing aircraft. This will enable the RBS to be delivered precisely into the designated mission area, minimizing risk to the aircraft and the receiving unit.



### Specification:

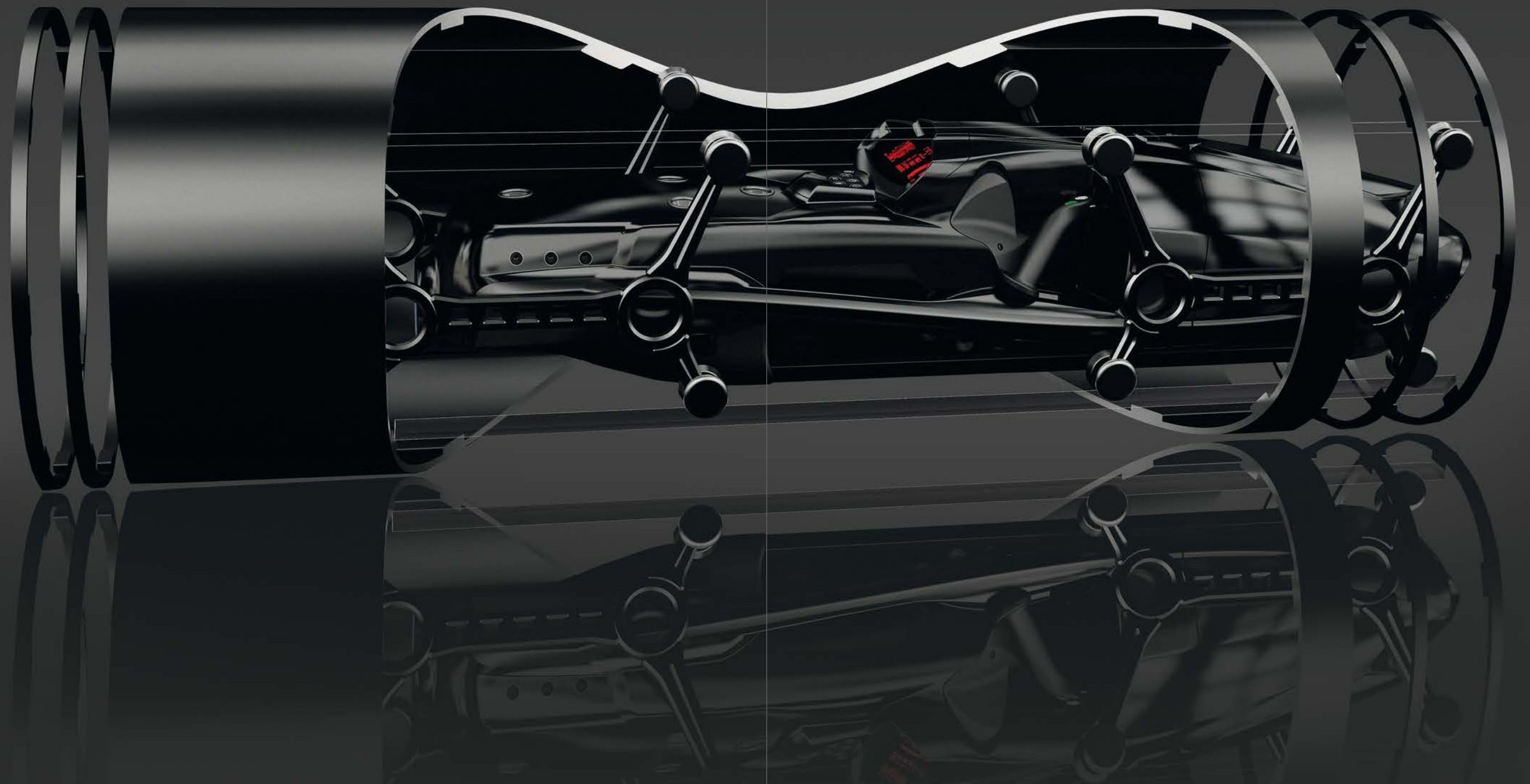
- Weight of RBS Harness: 6.5 kg
- Maximum deployment speed: 210 KIAS
- Minimum deployment speed: 60 KIAS
- Maximum deployment altitude: FL 350
- Minimum activation altitude: 5.000 ft. AGL
- Operation temperatures: + 70°C / - 55°C

# ROTINOR

Submarine Deployment

Deployment from submarine platforms provides the operator with improved operational advantages and increased mission capabilities.

Due to the compact dimensions of ROTINOR DPD, they are fully compatible with all NATO submarine torpedo tubes and can therefore be launched accordingly.







## ACCESSORIES

Included in delivery

- Operator harness system** ① To minimise fatigue in the arms of the operator during high-speed or long under-water missions.
- T-bar belt** ② For towing additional divers.
- Charger** ③ To provide charging to the accumulators. Charging time approximately 4 hours.
- Dive weight** ④ Provides optimal buoyancy for the RBS in all diving applications.
- Lift system** ⑤ For effortless lifting of the RBS.
- Rack system** ⑥ For secure fixation of the RBS.
- Case** ⑦ PELI-HARDIGG MIL-GRADE Case for safe transport and protected storage.

## OPTIONAL ACCESSORIES

Not included in delivery

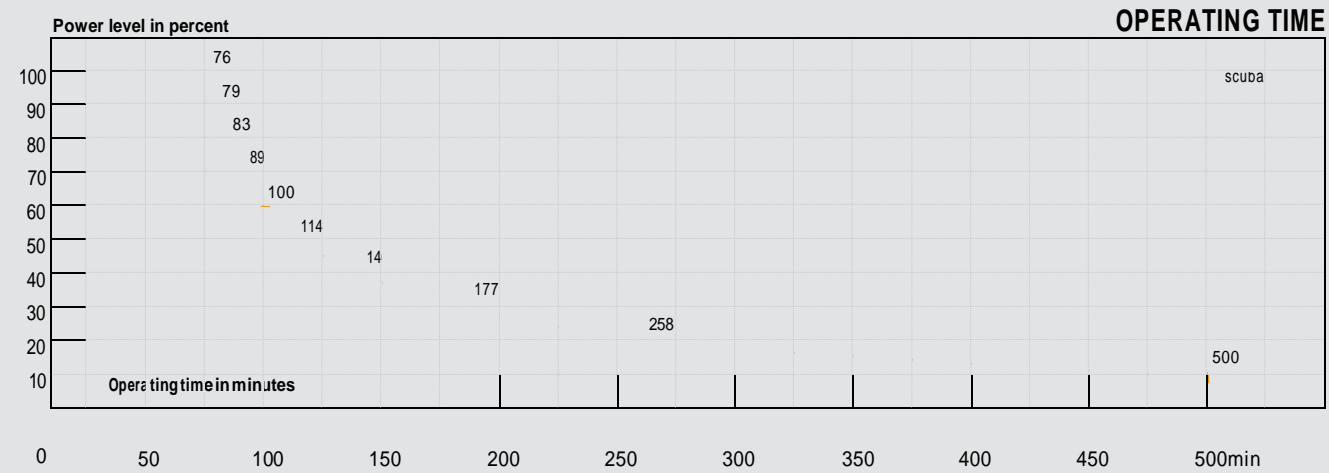
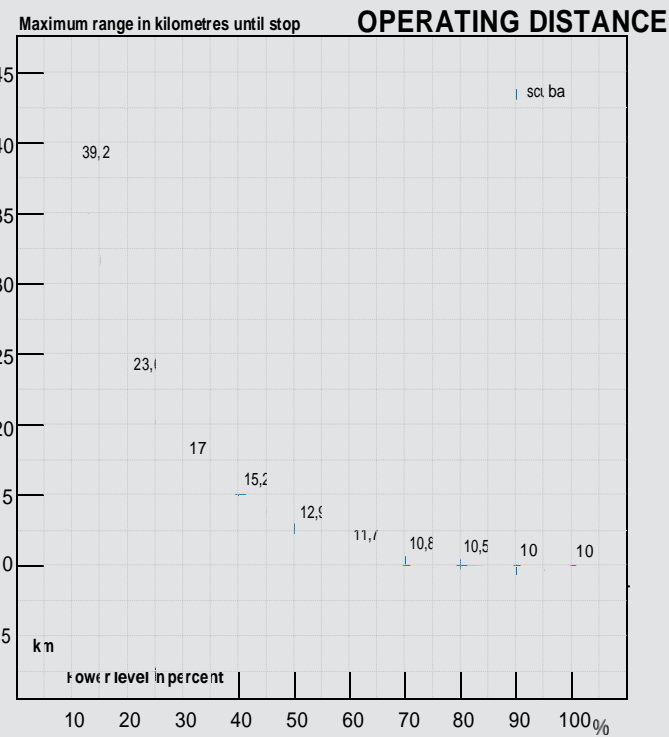
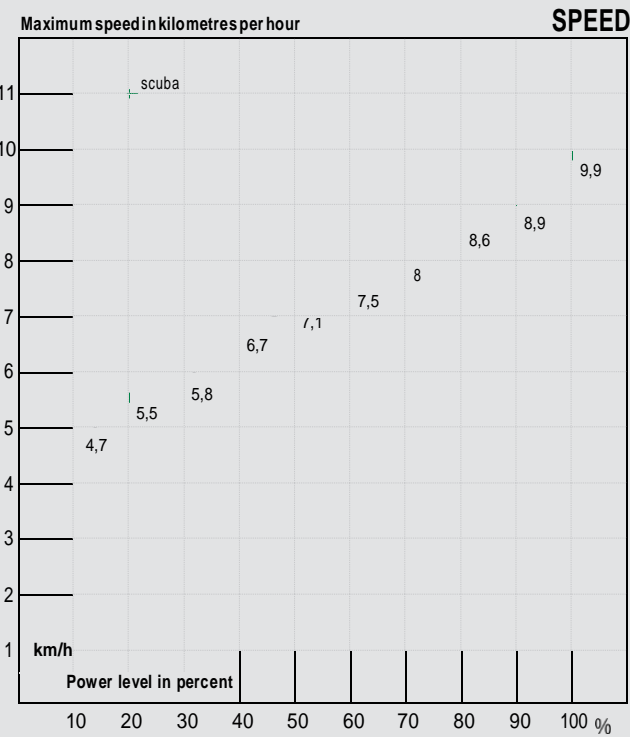


- All Terrain Cart** ⑧ The ROTINOR All Terrain Cart enables the RBS to be effortlessly manoeuvred over rough terrain and be deployed directly into the water.

# TECHNICAL DATA

Performance data and diagrams

Performance up to	5.9 kW (8 HP)
Thrust up to	735 N (75 kg)
Speed control	10 power levels
Speed up to	12.5 km/h
Energy – without memory effect	High-Energy Li-Ion accumulators
Total capacity	4.5 kWh; 60 V; 80 Ah
Operating time – average	3+ hours (see chart below)
Operating distance – average	20 km (see chart below)
Charging time	5 hours (approx.)
Maximum diving depth	60 metres (197 ft)
Weight	110 kg (approx.)
Dimensions in L x W x H	1,766 x 474 x 402 (in mm)



# ADVANCED BODY COATING

Matt Green & Matt Black

To meet with the high demands of the professional user, ROTINOR have developed an advanced body coating which is virtually scratch and dent proof.



[www.rotinor.com](http://www.rotinor.com)

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