SEACRAFT
MADE TO EXPLORE

SEACRAFT Dive Scooters

Contents

SEACRAFT scooters

The SEACRAFT underwater scooter (DPV – Diver Propulsion Vehicle) is an additional element of diving equipment used for faster movement and increased range diving. By purchasing the SEACRAFT underwater scooter you choose one of the best products available on the market today. The modern and innovative character of all SEACRAFT models is the result of detailed planning and supervised production processes. The manufacturer of the device, based on their own long-standing research and development, have applied innovative solutions in the field of machine design that have not yet been used in such devices: the motor running at full immersion, the post swirl stator, double sided steering handle, and electronic controllers, amongst others.

SEACRAFT
MADE TO EXPLORE

Legendary diver – Nuno Gomes uses SEACRAFT Scooter

Nuno Gomes – holder of two world records in deep diving (independently verified and approved by Guinness World Records), the cave diving record from 1996 to the present and the sea water record from 2005 to 2014.

Author of famous BEYOND BLUE “Journey into the Deep” book.

“The **SEACRAFT** scooter is for the diver who wants professionally designed diving equipment. It is reliable, robust, durable and yet, easy to maintain, even underwater. It’s the only scooter that has successfully reached depths in excess of 300 meters (1000 feet).

The top **SEACRAFT** scooter can cover distances of up to 31 kilometers (19 miles) on one battery charge. Accessories include a sophisticated digital navigation system with distance meter and bottom timer. After diving, one can view the dive profile, as well as the route followed on the navigation system.”

Nuno Gomes

SEACRAFT
MADE TO EXPLORE

Series of unique features

- Motor working in full water immersion
- Magnetic propulsion
- Extremely silent work
- Zero-torque (unique swirls stators systems)
- Built-in computer and control screen
- Custom-designed electronics
- External charging sockets
- 12 V Power outlet
- One-hand speed and trigger control

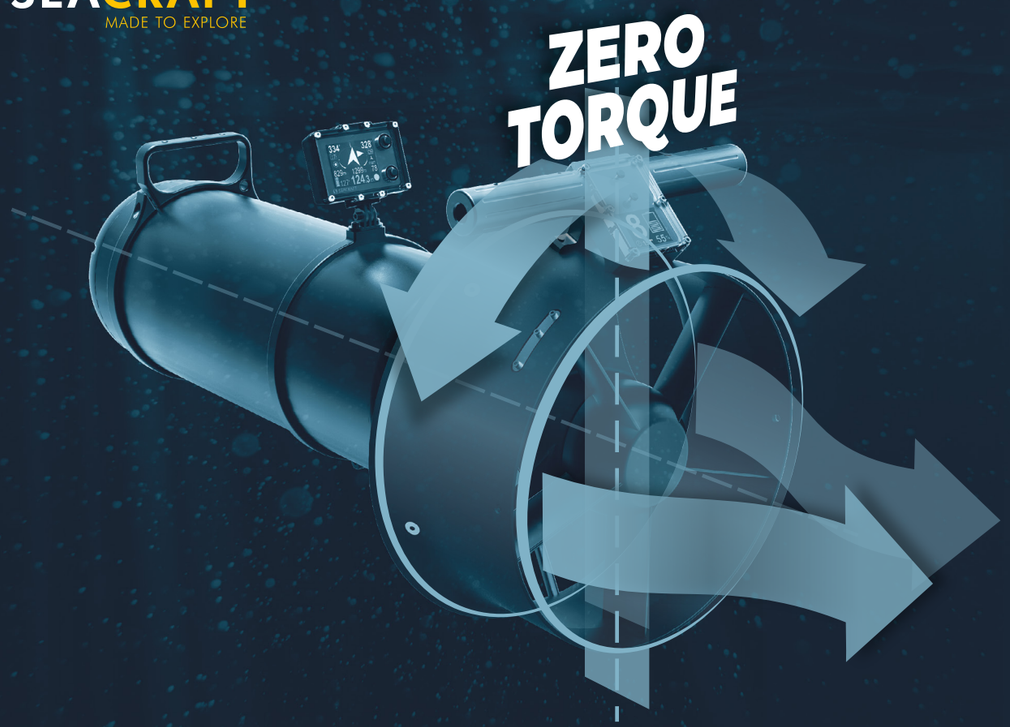
SEACRAFT
MADE TO EXPLORE

Magnetic propulsion

The **most unique element** of **SEACRAFT** construction is its motor which operates directly in the water. **Specially designed and patented solutions** allow complete elimination of the drive shaft and the need for unreliable seals and gear transmissions used in other DPVs.

The motor working in the water **is much more durable and resistant** to workload and also completely **eliminates overheating** inside the scooter. Innovative solutions enable the user to work much deeper, longer and with much greater motor power. Moreover, the motor runs almost silently, currently it's **the quietest scooter** on the market.

SEACRAFT
MADE TO EXPLORE

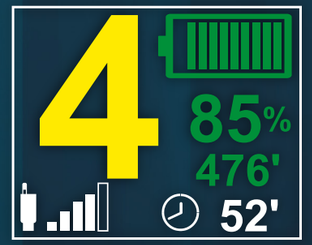


Zero torque

Since the beginning of construction works, **SEACRAFT scooters** used **innovative stator system**, inspired by jet engine construction. All propellers work cause torque effect – natural consequence of it's rotating action, what causes water stream to swirl, and creates turning force on scooter handle what increases diver's fatigue.

Our system interacts with propeller slipstream, changing it's swirl to net thrust – and ejects more uniform water collumn – what **increases maneuverability** and **decreases silting** when moving close to fine-sediments bottom.

SEACRAFT
MADE TO EXPLORE



Current gear indicates used power level. There are gears 1-9, gear “+” which is a booster gear and “R” – reverse.

Battery charge level allows for precise mission planning and control of remaining battery time.

Remaining run time and trigger time are displayed on the screen, based on current used gear and load.

Power outlet status icon indicates the current power set to be delivered by the external power outlet.

Control screen

TFT screen displays all important information for the diver – current gear, battery charge level, remaining run time, and trigger time. An installed power converter, it also displays the power intake and the voltage used by the connected device.

Built-in computer ensures constant monitoring of workload, humidity and temperature sensors to increase the safety of the diver and device.

Ergonomic double steering handle with two triggers allows driving the scooter with one, or both hands. Pre-defined “double tap” functionalities provide instant acceleration to the maximum speed when needed.

One-handed control allows to fully control **SEACRAFT** scooters with one hand – including changing speed, and activating the engine

SEACRAFT
MADE TO EXPLORE

Working efficiency

All elements of the drive system – engine, propeller, propelling nozzle, and post-swirl stator – were **precisely designed taking into account speed and load parameters divers encounter** under the water. The three-phase motor (currently the only one on the market) is controlled with a BLAC algorithm, **minimizing the energy consumption**.

SECRAFTS's scooters are extremely well optimized for work efficiency. This means, that – compared to DPVs of other manufacturers – they drain **drastically less energy** to propel a diver. Tests have proven, that a diver might **save even up to 50% of the power** required to transport a load, when using a **SEACRAFT DPV**.

Power management

SEACRAFT scooters use the latest generation of **lithium-ion batteries**, characterized by very high capacity, high efficiency, resistance to harsh environments, and short charging times. The integrated battery control system provides constant multi-level protection and cell balancing. For special applications, optional Ni-Mh batteries may be installed.

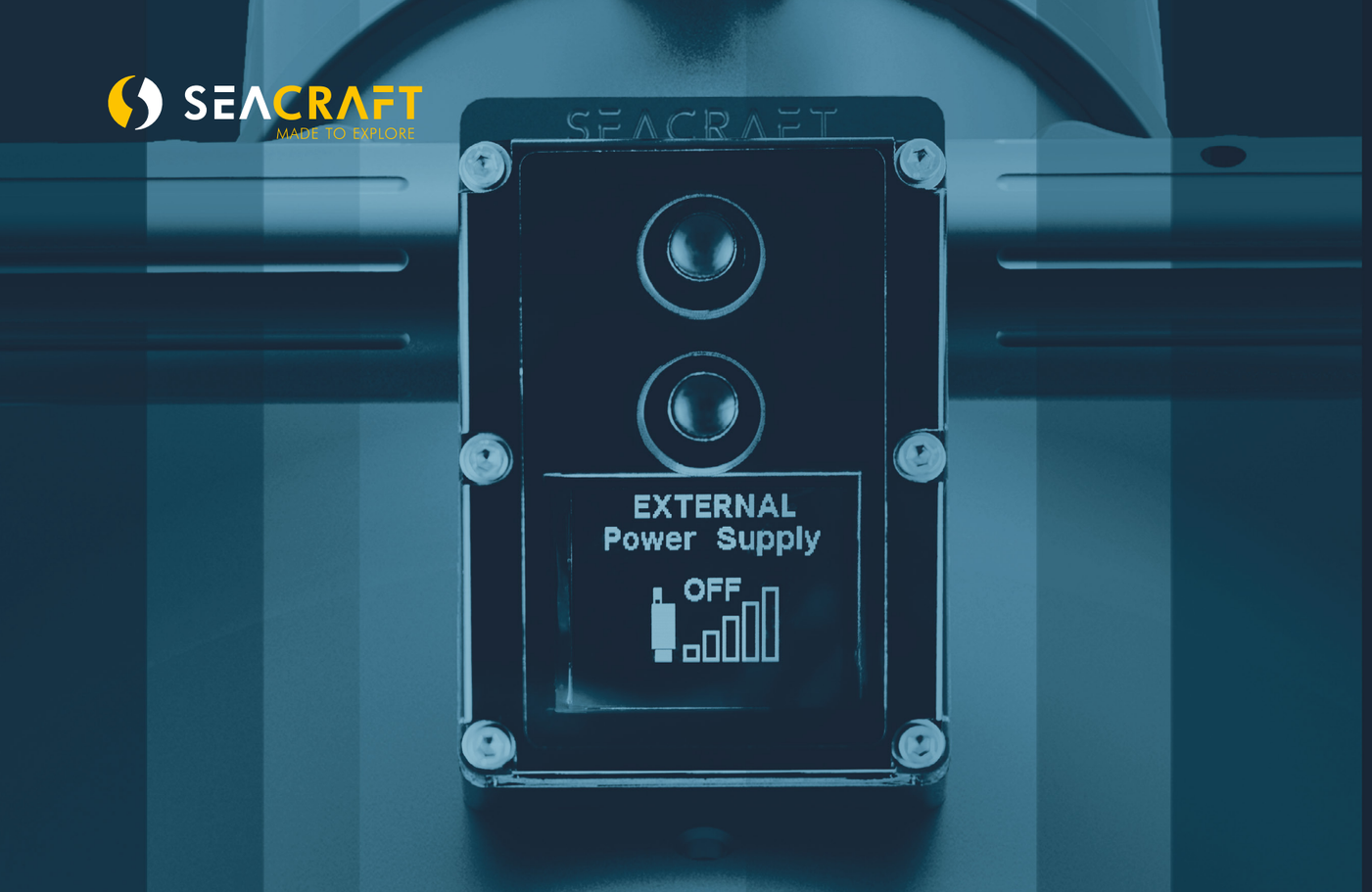
Unique Li-Ion travel battery system or welded cell batteries can be used. While travel batteries provide ease of travel and flexibility, big capacity ‘one piece’ batteries provide the highest possible performance. Both systems can provide asymmetric battery weight distribution. This results in a ‘handles-up’ position underwater, which provides easier and more intuitive operation.

The **battery housings are sealed** and thus protected from damages due to water contact in Future/Ghost series. All battery system can be easily replaced with a new one or charged outside of the scooter.

External hermetic charging socket allows for quick recharging of the scooter, without the need to open the unit. It is waterproof to 150 m, even without the charging port cap.

Fast recharging means, that the standard battery will be recharged fully within 2-3 hours.

Trimming system provides neutral buoyancy in all water salinities. It can be also configured to have a negative, or positive buoyant scooter. In addition, an optional external trimming belt system allows to change diving environment without a need for internal trimming.



Power outlet

With an installed power converter, **SEACRAFT DPVs** may power external devices from their own battery.

Power activation and voltage choice are possible via the **DPV's steering panel** – in 5 steps, with a maximum of 12 V provided. This allows for **smooth control** of the diver's personal heating systems in cold water and during long missions.

Dedicated lighting system – **SEACRAFT SLS2**, or any other 12V E/O light system can be connected, and controlled directly from the **SEACRAFT steering panel**.

SEACRAFT
MADE TO EXPLORE

SEACRAFT GO!

The **SEACRAFT GO! is a revolution** in the segment of compact underwater scooters. Weighing only 9,7 kg, the **GO!** offers exceptional performance and power.

Apart from that, the new **SEACRAFT** model is based on modular Li-Ion batteries with a capacity of 582 Wh which may be split up into several segments, approved to be transported in hand luggage aboard a passenger plane! This is, why we call them “air travel-friendly” batteries, since they offer you even more flexibility, than every other **SEACRAFT** scooter before.

This makes the **GO!** the perfect companion for recreational divers, free divers and technical divers looking for a reliable backup unit.

Model GO! includes:

- 97Wh segment of modular air-travel friendly battery – 6 pieces
- Charger 120 W dedicated to GO! scooter
- Multipurpose transport bracket ø160 mm
- Universal sports camera mount, attachable to the control module
- Scooter harness 1,8 m with carabiner and two tensioners
- Rigid thermal insulated EPP transport container dedicated for GO! Scooter
- Bag for air-travel friendly battery segments – for 8 segments maximum
- Spare parts set for GO! – set of seals and grease for seals, engine grease, trimming weight 52,5 g – 6 pieces, silicone blind plug for a 97 Wh module connector – 8 pieces

SEACRAFT GO!

MODEL	GO!
MOTOR	
Working time at optimal speed (45m/min.)*	>220 min.
Range*	>10 km
Maximum static thrust	>260 N
Maximum speed	>1,35 m/s
BATTERY	
Battery Li-Ion capacity	582 Wh in 6 segments (97Wh each)
Maximum battery voltage (after charging)	37,8 V
Minimum battery voltage (after discharging)	26 V
Charger operating voltage	230 V, 50 Hz, 120 W
DIMENSIONS	
Dimensions in milimeters	520x280x330
Housing diameter	160 mm
Weight with battery and fresh water ballast	9,7 kg

OTHER	
Maximum depth	100 m
Correct displacement (with adjusted ballast)	Neutral
Level/Trim (with adjusted ballast)	Neutral
Scooter operating temperature**	-5/+45°C
Scooter storage temperature	-25/+50°C
Temperature while charging	+10/+40°C

* Applicable in terms of a diver in a twinset 2x12, in a dry suit, in fresh water. Range tested for optimal speed.

** At temperatures below 0°C, due to the properties of lithium cells, the battery capacity and hence the scooter's performance can be significantly reduced. It is a reversible process – after raising the temperature of the battery to temperature level above 0°C the capacity of the battery returns to the nominal capacity.

SEACRAFT Future

SEACRAFT FUTURE is the flag model of the SEACRAFT brand. This model is a **perfect match of power, ergonomy and lightweight design**. Weighing just 15,9 kg it is perfect for recreational and technical diving to a depth of 150 m.

FUTURE can be used with a wide range of batteries – one-piece 750 Wh and 1000 Wh, or modular air-travel friendly batteries. (584-780 Wh). All of them allow for extended use of the power of the scooter, on average 2-4 dives without charging the battery.

Charging is possible without opening the scooter since the charging socket is located directly in the housing case of the device. **FUTURE** was tested by many recognized divers in the world, including exploration of caves and wrecks in both salt and fresh water. Due to the high efficiency of the drive unit, the high power of the battery, and construction optimization, its range reaches an impressive 15 km.

It's the lightest (only 15,75 kg with battery), fastest and most compact scooter in its class currently available on the market.

Model FUTURE includes:

- Battery dedicated to scooter FUTURE standard 750 Wh or 1000 Wh
- Charger 240W 9S LiIon dedicated to FUTURE scooters
- POM transport bracket ø160
- Universal sports camera mount, attached to the control module
- Internal scooter ballast mounting plate
- Trimming weight 62 g – 3 additional pieces
- Trimming weight 182 g – 2 additional pieces
- Scooter harness 1,8 m with carabiner and two tensioners
- Spare parts set for FUTURE – set of seals and grease for seals, engine grease, spare rubber buttons for steering module – 4 pieces
- Service key

SEACRAFT air-travel batteries

Traveling by commercial plane with DPV was always a struggle. Low-capacity NiMh batteries that were allowed on board, are even 70 % weaker than modern Li-Ion cells. The energy density of NiMh battery reaches 100 Wh/Kg, while Li-Ion designs allow for even 270 Wh/kg. Big and powerful Li-Ion batteries are unfortunately forbidden to transport by passenger planes due to safety reasons.

SEACRAFT's modular air-travel friendly battery consists of 6 to 8 segments with 97 Wh capacity. Each segment contains its own battery management and protection system and is certified with UN 38.3. According to IATA (International Air Transport Association) recommendation, up to 20 such segments can be taken into the hand luggage.

The total capacity of 582 Wh (6 segments) and 780 Wh (8 segments) provides very good runtime and performance, allowing to perform long-range dives. The same segments are used in both **GO!** and **Future** air-travel batteries, allowing to use of the same segments for traveling with one of these units.

SEACRAFT Future

MODEL	Future BX750	Future BX1000	Air-Travel 600	Air-Travel 800
MOTOR				
Working time at optimal speed (45m/min.)*	>260 min.	>350 min.	>200 min.	>270 min.
Working time at maximum speed (gear 9)*	>70 min.	>95 min.	>60 min.	>80 min.
Range*	>11,7 km	>15,7 km	>9 km	>12,1 km
Maximum static thrust	>340 N	>340 N	>330 N	>340 N
Maximum speed*	>1,6 m/s	>1,6 m/s	>1,5 m/s	>1,6 m/s
BATTERY				
Battery Li-Ion capacity	750 Wh	1000 Wh	582 Wh	780 Wh
Nominal battery voltage	32,4 V	32,4 V	32,4 V	32,4 V
Maximum battery voltage (after charging)	37,8 V	37,8 V	37,8 V	37,8 V
Minimum battery voltage (after discharging)	26 V	26 V	26 V	26 V
Charger operating voltage(230 V, 50 Hz)	240 W	240 or 400 W**	240 W	240 W
Average time of charging 90%	3 h	5 or 3 h	3 h	3 h
Average time of charging 100%	4 h	6 or 4 h	4 h	4 h

DIMENSIONS				
Dimensions in milimeters	845x360x410	845x360x410	845x360x410	845x360x410
Housing diameter	160 mm	160 mm	160 mm	160 mm
Weight without battery and ballast	10 kg	10 kg	10 kg	10 kg
Weight with battery and fresh water ballast	15,75 kg	15,75 kg	14,58 kg	15,66 kg
OTHER				
Maximum depth	150 m	150 m	150 m	150 m
Correct displacement (with adjusted ballast)	Neutral	Neutral	Neutral	Neutral
Level/Trim (with adjusted ballast)	Neutral	Neutral	Neutral	Neutral
Scooter operating temperature***	-5/+45°C	-5/+45°C	-5/+45°C	-5/+45°C
Scooter storage temperature	-25/+50°C	-25/+50°C	-25/+50°C	-25/+50°C
Temperature while charging	+10/+40°C	+10/+40°C	+10/+40°C	+10/+40°C

* Applicable in terms of a diver in a twinset 2x12, in a dry suit, in fresh water. Range tested for optimal speed.

** Depending on the order.

*** At temperatures below 0°C, due to the properties of lithium cells, the battery capacity and hence the scooter's performance can be significantly reduced. It is a reversible process – after raising the temperature of the battery to temperature level above 0°C the capacity of the battery returns to the nominal capacity.

SEACRAFT Ghost

SEACRAFT GHOST is a model for professionals, whose high requirements in technical equipment dictate work in special forces, rescue services, or so-called difficult explorations. Properly selected parameters of the **GHOST** model provide amazing driving parameters and power, phenomenal maneuverability and unmatched ease of use, weighing just 22,9 kg. The extremely high level of efficiency of the device results from innovative technology, which allows reaching very high speeds and depths while en¬suring safety and ergonomic use. This model is recommended to all divers, for whom exploration depth is an everyday challenge or task.

The **GHOST** model was built to exceed the current limits set by other DPV scooters on the market. The **SEACRAFT GHOST** model includes the world's quietest fully-immersed engine, an innovative TFT graphic display on-board computer that allows for the individual configuration of the device, and an exceptionally large battery (standard 1500 W, extra capacity 2000 W). The unique features of the device make it possible to reach diving distances exceeding 30 km, previously unavailable even for equip¬ment dedicated to professionals. This model is characterized by the highest precision and speed that today is unique to the models used by the military and special forces.

Model GHOST includes:

- Battery dedicated to scooter GHOST 1500 Wh or 2000 Wh
- Charger 400W 9S LiIon dedicated to GHOST scooters
- Aluminium transport bracket ø208
- Universal sports camera mount, attached to the control module
- Internal scooter ballast mounting plate
- Trimming weight 62 g – 3 additional pieces
- Trimming weight 182 g – 3 additional pieces
- Scooter harness 1,8 m with carabiner and two tensioners
- Spare parts set for GHOST – set of seals and grease for seals, engine grease, spare rubber buttons for steering module – 4 pieces
- Service key

SEACRAFT Ghost

MODEL	Ghost BX1500	Ghost BX2000
MOTOR		
Working time at optimal speed (45 m/min.)*	>525 min.	>700 min.
Working time at maximum speed (gear 9)*	>140 min.	>220 min.
Range*	>23,6 km	>31,5 km
Maximum static thrust	>340 N	>340 N
Maximum speed*	>1,6 m/s	>1,6 m/s
BATTERY		
Battery Li-Ion capacity	1500 Wh	2000 Wh
Nominal battery voltage	32,4 V	32,4 V
Maximum battery voltage (after charging)	37,8 V	37,8 V
Minimum battery voltage (after discharging)	26 V	26 V
Charger operating voltage	230 V, 50 Hz, 400 W	230 V, 50 Hz, 400 or 900 W**
Average time of charging 90%	4 h	6 or 3 h
Average time of charging 100%	5 h	7 or 3,5 h

DIMENSIONS		
Dimensions in milimeters	800x360x410	800x360x410
Housing diameter	208 mm	208 mm
Weight without battery and ballast	12 kg	12 kg
Weight with battery and fresh water ballast	22,9 kg	22,9 kg
OTHER		
Maximum depth	220 m	220 m
Correct displacement (with adjusted ballast)	Neutral	Neutral
Level/Trim (with adjusted ballast)	Neutral	Neutral
Scooter operating temperature***	-5/+45°C	-5/+45°C
Scooter storage temperature	-25/+50°C	-25/+50°C
Temperature while charging	+10/+40°C	+10/+40°C

* Applicable in terms of a diver in a twinset 2x12, in a dry suit, in fresh water. Range tested for optimal speed.

** Depending on the order.

*** At temperatures below 0°C, due to the properties of lithium cells, the battery capacity and hence the scooter's performance can be significantly reduced. It is a reversible process – after raising the temperature of the battery to temperature level above 0°C the capacity of the battery returns to the nominal capacity.

SEACRAFT
MADE TO EXPLORE

Coupling system

A **dedicated DPV coupling platform** allows connecting two **SEACRAFT** scooters together. The primary reasons to combine them are:

- **more power** – two propellers double the thrust and provide a very powerful towing system
- highly **increased maximum speed** (even 120 m/min.)
- significantly **increased driving range**
- **simultaneous control and monitoring** over two scooters

A **patented connection system** allows to combine the DPVs in a moment – simply by pushing them together. **Disconnecting is easy**, even when using thick cold-water gloves. The platform itself is a separate element, simplifying activities such as trimming and transporting additional equipment attached to it.

Light system SLS2

For many divers, mounting a light system on a DPV has always felt natural, since they see their DPV as a **useful tool and companion – even in the darkness**.

Using a DPV safely requires proper visibility ahead. When the surroundings get darker, powerful headlights support the diver's orientation and make him more visible to the team.

That is why **SEACRAFT** always supported mounting a **proper lighting system on the DPV**. Simple attaching a flashlight to the DPV works, however, is not a perfect solution – due to small battery constraints, trimming and weighing challenges, and difficulty in turning ON/OFF.

SEACRAFT
MADE TO EXPLORE

ENC3 – Electronic Navigation Console

ENC3 is a revolutionary device and the only one so **compact and powerful** navigational underwater tool available on the market. It allows one to set a destination underwater, navigate to it and return to the entry point, simultaneously logging the track covered underwater. Important points of the route can be marked and saved.

All of the crucial data – direction information, compass course, depth, distance to the target, estimated time to arrive, current speed, diving time – are displayed right in the drivers field of vision, facilitating navigation even with high speeds.

ENC3 became a standard method of cave survey, due to the precision and speed of collecting data.

Depending of needs all **SEACRAFT's Electronic Navigation** consoles can be used both assembled on the scooter or without a scooter or with **The Surveyor** line survey tool. Consoles are also prepared to assemble for other scooters than **SEACRAFT**.

SEACRAFT
MADE TO EXPLORE

ENC3-PRO

The **ENC3-PRO** originates from the **ENC3-MIL**, a navigation system available from 2019 for military and special forces divers. As it proved to be extremely useful also for regular diving, **SEACRAFT** prepared this version as dedicated to civil and scientific users.

Underwater, **any pre-set target can be chosen**, at any moment to navigate to this specific point. **Up to 29 route points** can be easily programmed using the freeware PC software. Points positions can be chosen directly on the map, saved as GPS coordinates, or as azimuth/distance. Obtained GPS positions, and driven underwater tracks are **stored in ENC3-PRO** memory allowing detailed archeological or scientific surveys.

The modular construction of GPS type B module receiver provides a lot of installation options and allows for quick and precise position measurements. **GPS module may be directly connected to the console with a 0,1 m cable or used with a 3 m / 10 m long cable and additional buoyancy floats**. Changing the cable is very simple and requires no tools. 3 and 10 m cables can be easily winded on the dedicated holders attached to the DPV.

SEACRAFT
MADE TO EXPLORE

The Surveyor

The **Surveyor** is an **accessory for ENC3 navigation console**. It allows for measurement of tensioned lines, which are often used as reference – for example, for cave diving survey, or archeological survey.

While the **DPV-mounted ENC3 survey** is a very fast and precise measurement method, it will be difficult to use in tight environments (restricted caves), or with strong variable current present.

For the the highest accuracy level a permanent reference grid measurement is always the best option.

office@seacraft.eu
www.seacraft.eu