# DESERT POWER DESIGNS LLC

HIGHLAND SYSTEMS

MADE IN UAE

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DESERT POWER DESIGNS LLC
HIGHLAND SYSTEMS

# Advanced Integrated Technologies

Desert Power Designs/Highland Systems are an R&D which specializes in development and implementation of state-of-the-art technology into production. Our highly qualified engineering team comprises of industry professional's from a wide range of defense backgrounds specializing in manufacturing of armored vehicles, submarines, UAV.

Desert Power Designs/Highland Systems R&D capabilities encompassing all aspects of innovation, unparalleled technical expertise and advanced technology. We specialize in integrating advanced technologies into our products and use it to enhance and support our manufacturing capabilities, increasing our products efficiency and performance, this enables us to deliver innovative and effective solutions to our customers.

We are specialist at design and production of wheeled and amphibious combat vehicles for military and security application, submarine's, UAV, underwater drones.

KRONOS
SUBMARINE

# KRONOS SUBMARINE

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# KRONOS SUBMARINE

## MADE IN THE UAE

Desert Power Designs LLC/Highland Systems have developed a unique submarine, which has no analogues in the world, to perform a wide range of tasks:

- Military purpose
- Rescue work
- Underwater engineering works

This is the world's first gliding submarine.

The boat has a unique hydrodynamic hull, which makes it possible to maneuver underwater like an airplane in the sky. It also guarantees high speed performance both submerged and surfaced.

The hull of the submarine is made of high-strength composite material

Possibility of operation in any climatic conditions, from equatorial waters to the Arctic.

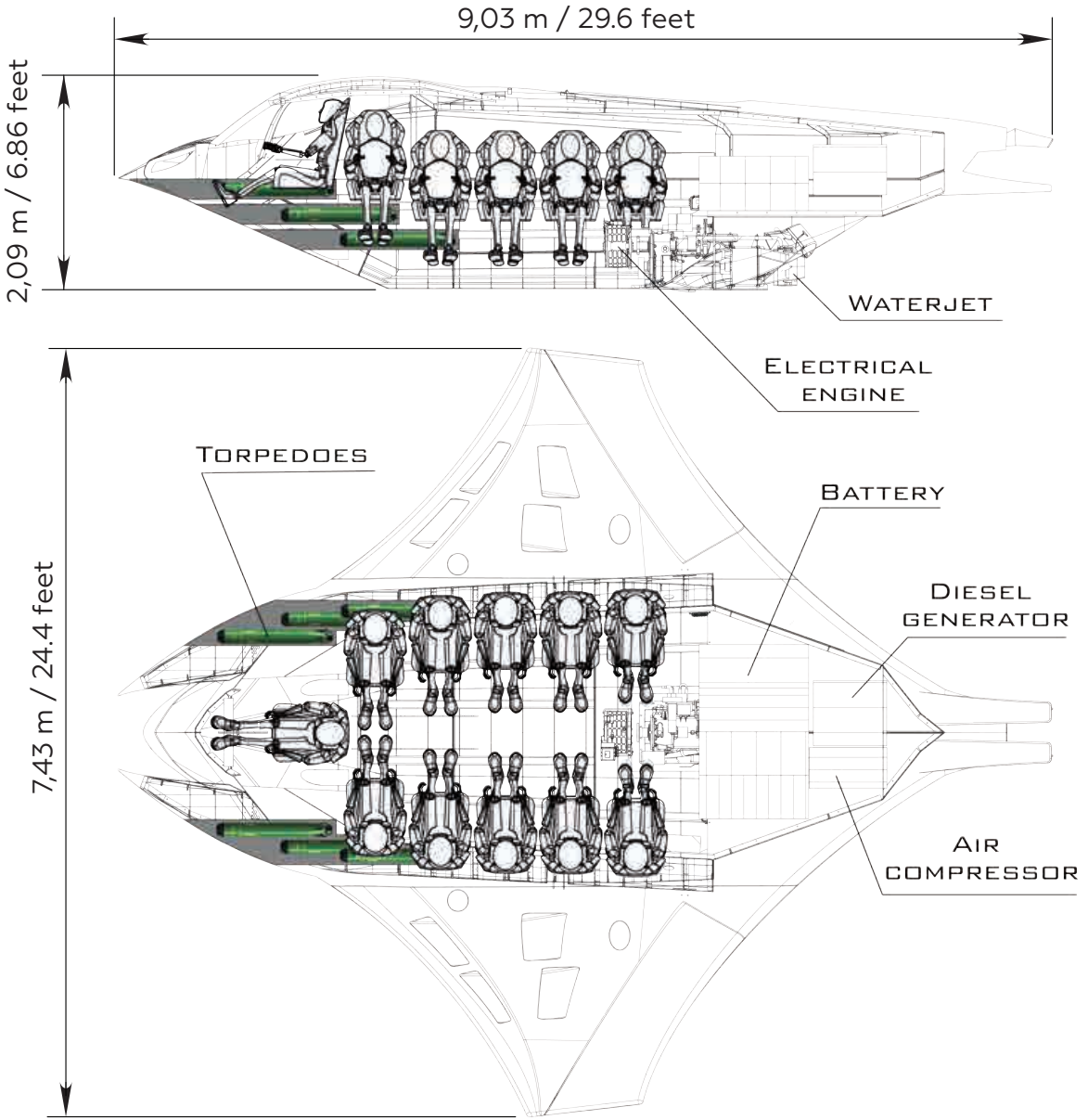
Low signature for detection systems, high degree of radio interference.

Silent power plant.

When designing, advanced engineering solutions were applied.

KRONOS
SUBMARINE

# Location of the crew and main elements



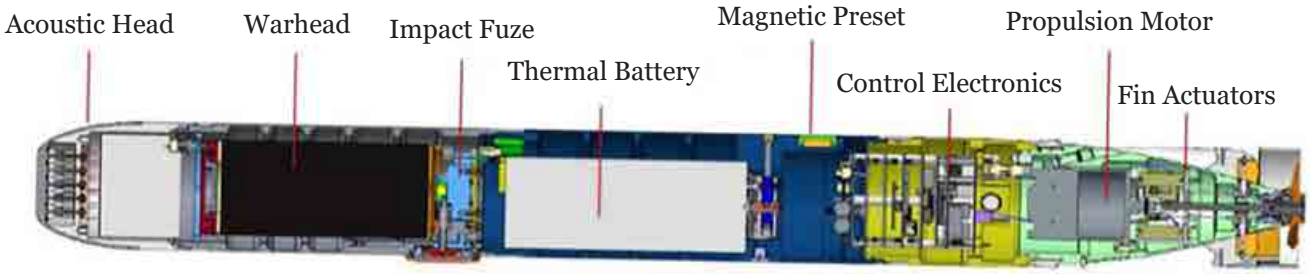
# BLACK SCORPION TORPEDOES

Kronos Submarine can be equipped with a small size torpedo system "Black Scorpion" made by Italian defence manufacturers Leonardo. With range 3000 m.

Kronos submarine with “Black scorpion" torpedoes can also be remotely operated and used as a ROV/drone.

With the "Black Scorpion" torpedo system fitted to Kronos it can neutralise all surface and underwater threats and in general defend itself from hostile aggressors.


## Main Characteristics




| | |
|---|---|
| • **Length** | 1100 mm, 5" diameter |
| • **Weight in air** | <20 kg |
| • **Operative depth range** | NATO shallow water |
| • **Presetting system** | magnetic interface |
| • **Speed** | >XX knots |
| • **Acoustics** | active/passive |
| • **Exploder** | impact/time delay/flat battery |

KRONOS SUBMARINE

# SPECIFICATIONS

KRONOS SUBMARINE. MADE IN THE UAE

| DIMENSIONS | |
|---|---|
| Width | 24.4 feet (7.43 meters) |
| Length | 29.6 feet (9.03 meters) |
| Height | 6.86 feet (2.09 meters) |
| Carrying Capacity | up to 6614 lbs (3000 kg) on water |
| Curb Weight | 26455 lbs (12000 kg) |
| Seating Capacity | 11 |
| PERFORMANCE | |
| Fuel | Diesel |
| Max Speed on Water | 43.2 Knot (80 km/h) |
| Max Speed under Water | 27 Knot (50 km/h) |
| Working depth | 328 feet (100 meters) |
| Max critical depth | 820 feet (250 meters) |
| Air supply | 36 hours |

# SPECIFICATIONS

KRONOS SUBMARINE. MADE IN THE UAE

| RANGE | |
|---|---|
| Hybrid Mode | 54 hours |
| Generator Only Mode | 36 hours |
| Battery Only Mode | 18 hours |
| Electric Engine Power | 1200 hp/2,400 Nm |
| PERFORMANCE | |
| Full Battery Charging Time | 1,5 hours |
| Air refueling | 1,5 hours |
| Engine Type | Electric Engine |
| Folding wings for transportation | |

KRONOS
SUBMARINE

- The interior space of the submarine's cabin
- Adaptive lighting
- Automated life support system
- Onboard air conditioner system
- Air Dryer
- Heater
- CO scrubber


- Steering - hydraulic powered
- 25 kW, diesel/petrol genset
- Throttle - electronic throttle control handle.
- Battery designed for marine purpose, sealed box. System is fitted with an isolator and emergency link in case of individual battery failure (Safety standards - EEC Directive 93/112/EC)
- Onboard 12V – 10 Kw
- Onboard 24V – 12 Kw
- GPS / Chart Plotter Unit - SIMRAD, with echo sounder
- Onboard air compressor 300 bar
- Underwater / surface radio stations
- Night Vision cameras (360 degree)
- Emergency ascent system
- Emergency firefighting system
- Emergency (additional) life support system
- Bilge pumps
- Additional Maneuvering System (Active Maneuvering System)
- Adaptive interior lights

# OPTIONAL EQUIPMENT

KRONOS SUBMARINE. MADE IN THE UAE

- Manipulators
- Samplers
- Electronic periscope
- External scanners and analyzers
- Onboard underwater drone
- Onboard quadcopter
- Surface autopilot
- Underwater spotlight
- Surveillance cameras (including special ones)
- External connections for air supply, electricity, etc.
- Chamber of dry opening of hatches
- Chamber of underwater exit from the boat (lock and pressure chamber)
- Equipment for underwater towing
- Modification for operation in arctic conditions
- 4- 6 Light Weight torpedoes
- Fresh water tank 200 liters
- Water closet

# APPLICATIONS

KRONOS SUBMARINE. MADE IN THE UAE

- Research missions
- Exploration of the seabed
- Visual inspection of underwater locations and objects
- Monitoring of the state of underwater pipes and cables (including using additional external devices and sensors)
- Underwater rescue work
- Exploration
- Military purpose
- Operations  in arctic conditions

KRONOS
SUBMARINE

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# UNDERWATER EQUIPMENT

To perform high-complexity underwater work at depths of more than 50 meters, such as underwater welding, inspection and repair of underwater pipes and cable wires, maintenance of offshore drilling platforms, inspection and maintenance of ships, and other works underwater, the KRONOS submarine is equipped with NOVOSUB instruments and hardware, company from Netherlands [www.novasub.com](http://www.novasub.com)

The equipment provides direct video / audio communication with the diver from the carrier ship, which guarantees a high level of engineering support and safety for the diver during underwater work.

PROTEUS-W1 | Modular 19″ rack system

ALPHEUS-C1 | Portable diver radio, video recorder and depth monitor

DVR3 | Digital video recorder

KM37 | Kirby Morgan Helmet

Guardian | OTS Full Face Mask

R-VEST | Diver Harness

NSHEADSET6 | Double-ear PTT headset

# STORM

ARMOURED HYBRID
AMPHIBIOUS MPV

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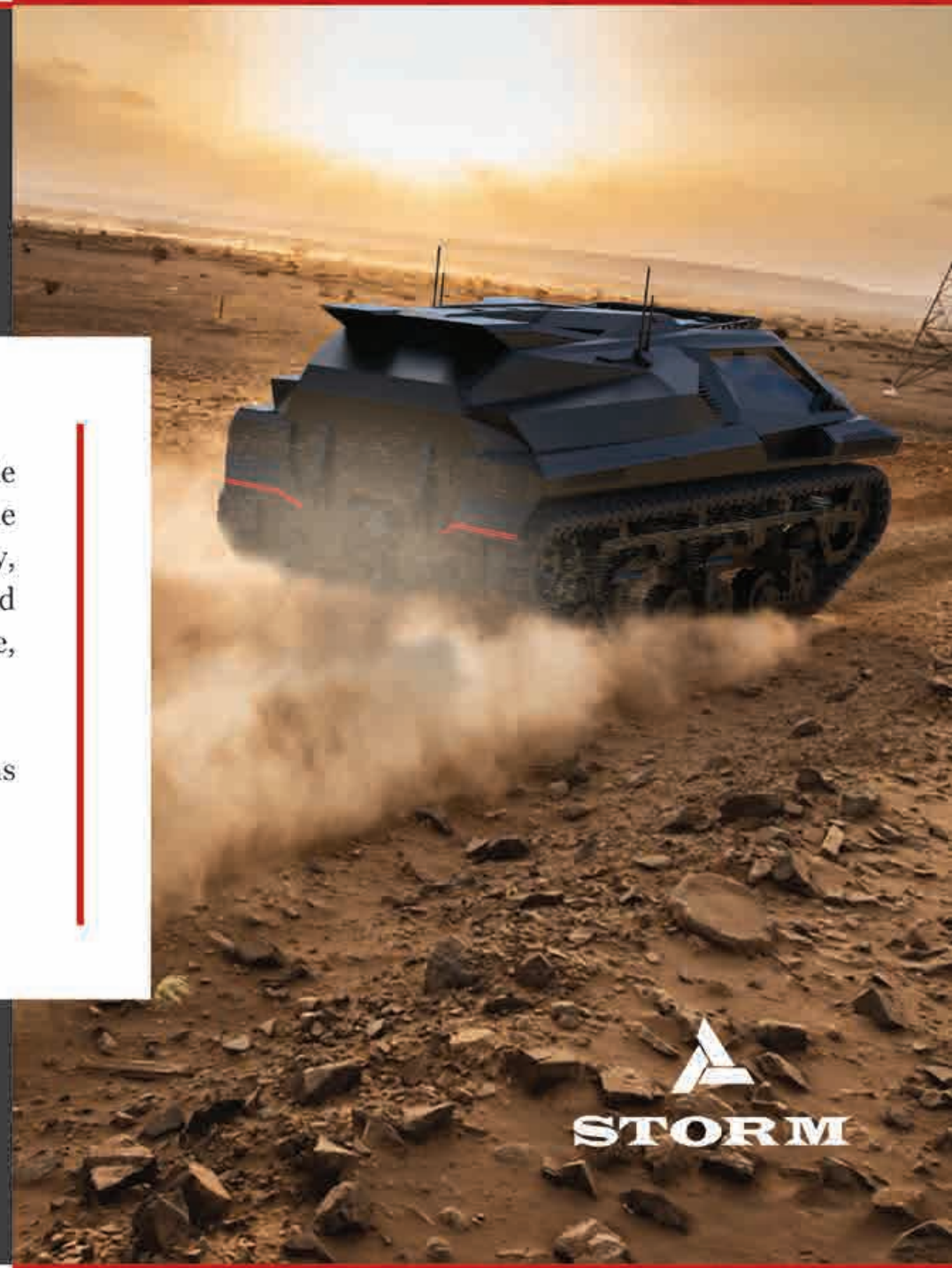
# STORM MPV

## STORM ARMOURED VEHICLES MADE IN THE UAE

STORM is a Multi-Role Armoured Vehicle, designed for use in a wide range of specialist military and civil applications. Built for the harshest environments, the vehicle offers exceptional mobility, reliability and provides the latest technologies in ballistic, IED and mine blast protection. Due to the versatile nature of the vehicle, STORM also offers the user surface amphibious capabilities.

All STORM vehicles can be configured with remote control systems allowing for autonomous operations.

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# SPECIFICATIONS

STORM ARMOURED VEHICLES. MADE IN THE UAE

| DIMENSIONS | |
|---|---|
| Width | 2875 mm |
| Length | 5895 mm |
| Height | 2455 mm |
| Carrying Capacity | up to 2500 KG on water |
| Curb Weight | 10000 KG |
| Seating Capacity | 10 |
| PERFORMANCE | |
| Fuel | Diesel |
| Max Forward Speed | 142 kmph |
| Max Reverse Speed | 50 kmph |
| Max Speed on Water | 35 kmph |
| Surmountable Rise Up To | 75% |
| Armouring Level | STANAG 4569 Level 3 |

# SPECIFICATIONS

STORM ARMOURED VEHICLES. MADE IN THE UAE

| RANGE | |
|---|---|
| Hybrid Mode | 18-36 hours |
| Generator Only Mode | 8,5 hours |
| Battery Only Mode With Speed 80-90 km / hour | 7 hours |
| With Speed 100-140 km / hour Battery Operating Time | 2,5 hours |
| On water | 8 hours |
| Electric Engine Power | 2500 hp |
| PERFORMANCE | |
| Overcome Moat | 2 m |
| Overcome Vertical Rise (step) | up to 1,5 m |
| Minimum Turning Radius | on place |
| Full Battery Charging Time | 3 hours |
| Ground Clearance | 50 cm |
| Engine Type | 4,400 Nm |

# PHANTOM MPV

MADE IN UAE

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# PHANTOM MPV

## MADE IN THE UAE

Phantom MPV is a highly mobile B6 Armored Vehicle which is capable of operating across a wide range of the harshest terrains, with exceptional off-road mobility, high performance and provides the latest technologies in ballistic, IED and mine blast protection. The Phantom Vehicle can be configured for a variety of military and government specific operations and customized to accommodate a range of user specific equipment.


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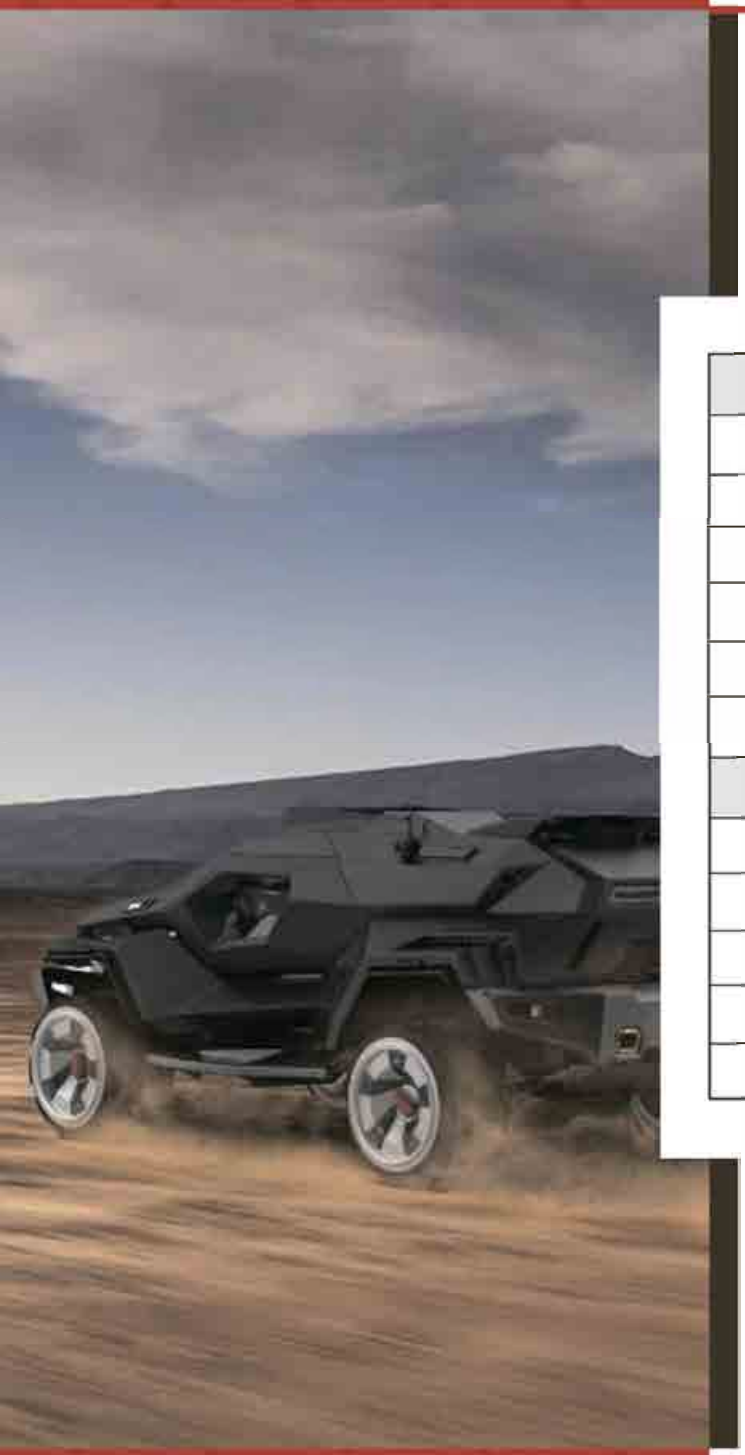

# SPECIFICATIONS

PHANTOM MPV. MADE IN THE UAE

| DIMENSIONS | |
|---|---|
| Width | 2300 mm |
| Length | 5300 mm |
| Height | 2200 mm |
| Torque | 1200 Nm |
| Curb Weight | 6000 KG |
| Seating Capacity | 6 |
| PERFOMANCE | |
| Fuel | Diesel/Electrical |
| Land Speed | Max 160 kmph |
| Climb | 75 % |
| Vehicle Clearance | 40 cm |
| Battery Power | 70 kw |

# SPECIFICATIONS

PHANTOM MPV. MADE IN THE UAE

| RANGE | |
|---|---|
| Hybrid Mode | 18 hours |
| Generator Only Mode | 8.5 hours |
| Battery Only Mode | 3.5 hours |
| With speed 140-150 km/hour battery operating time | 1.5 hours |
| Engine Type | 1600 hp |
| Ground Clearance | 40 cm |
| PERFOMANCE | |
| Generator | 220-380 V/40 kW |
| Battery Power | 70 kW |
| Armoring Level | CEN/B6 |

# BUGGY HUNTER MK-200

MADE IN UAE

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# BUGGY HUNTER MK-200

MADE IN THE UAE

Buggy Hunter MK-200 is a 4 -person, multi-purpose tactical vehicle designed to carry troops to challenging theatres of operation. This versatile Armored Vehicle offers superior protection and exceptional mobility, making it ideal for high-risk areas. The Buggy Hunter MK-200 has superior features, including technical configuration and a powerful diesel engine making it a reliable vehicle for multi-purpose operations.

# SPECIFICATIONS

BUGGY HUNTER MK-200. MADE IN THE UAE

| DIMENSIONS | |
|---|---|
| Width | 1700 mm |
| Length | 4000 mm |
| Height | 1900 mm |
| Vehicle Load | 700 KG |
| Curb Weight | 2500 KG |
| Seating Capacity | 4 |
| RANGE | |
| Hybrid Mode | 18 hours |
| Generator Only Mode | 8,5 hours |
| Electric Motor | 500 hp/1000 Nm |
| Vehicle Clearance | 50 cm |
| Battery Power | 40 kW |
| Battery Only Mode | up to 1,5 hours |

# SPECIFICATIONS

BUGGY HUNTER MK-200. MADE IN THE UAE

| PERFORMANCE | |
|---|---|
| Overcome Moat | 2 m |
| Overcome Vertical Rise (step) | up to 1,5 m |
| Minimum Turning Radius | on place |
| Full Battery Charging Time | 3 hours |
| Ground Clearance | 50 cm |
| Engine Type | diesel/petrol/electrical |

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# UAV

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# UAV

## Delta-3 Tricopter

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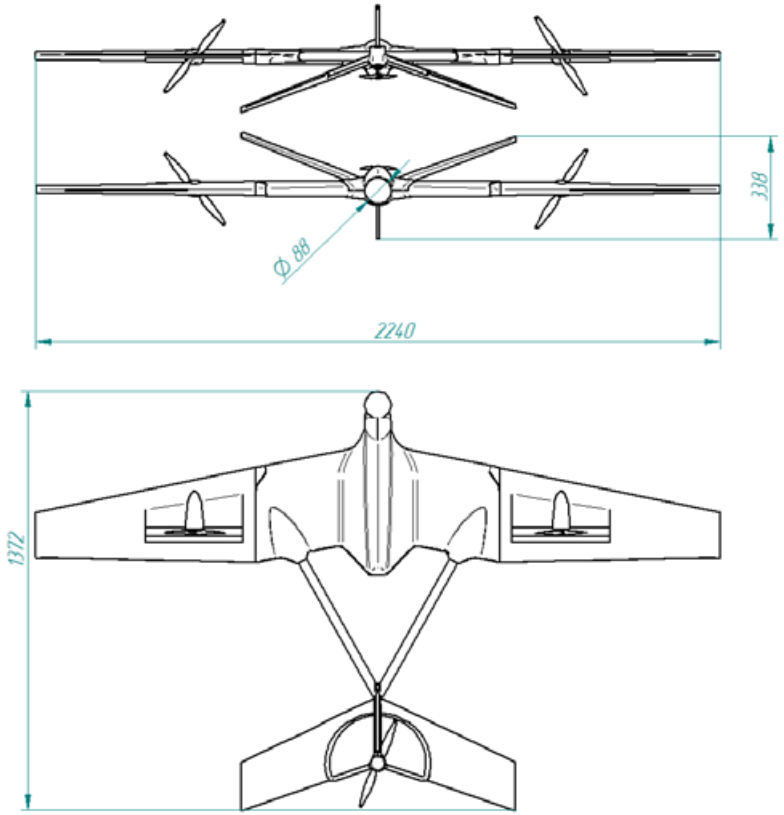
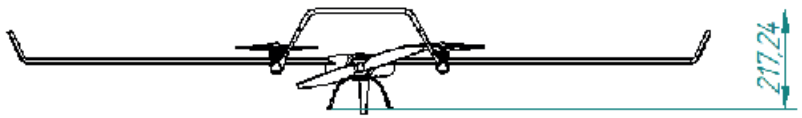


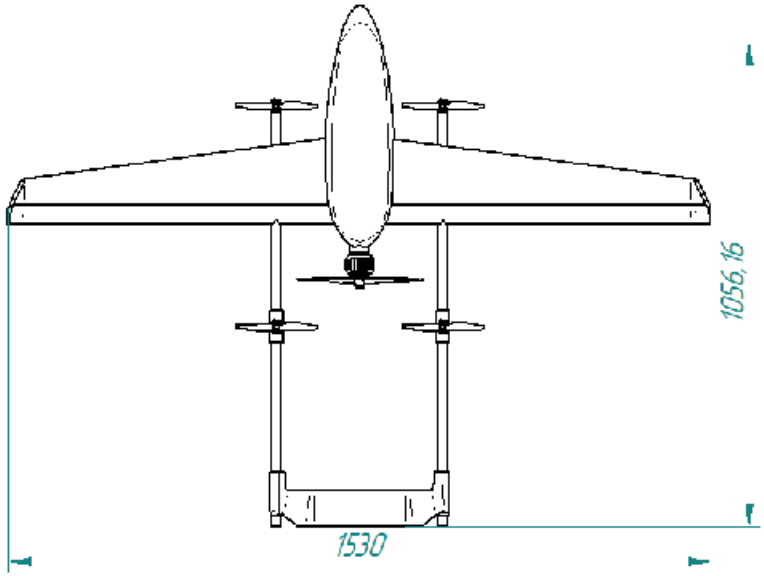

Full electrical Tricopter drone

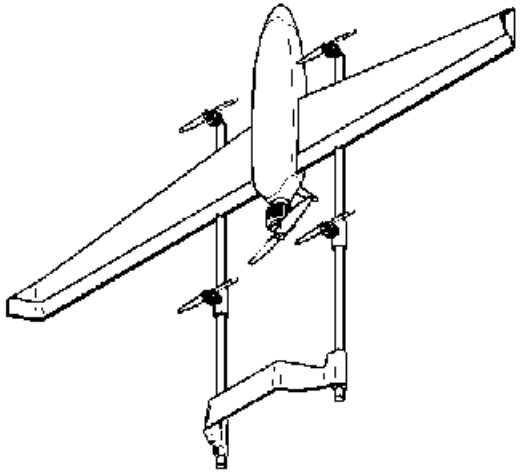
| | | | |
|---|---|---|---|
| Takeoff weight | 19 Kg | Max Payload | 4.5 Kg |
| Endurance | 2 Hours | | |
| Wind Resistance | 10 m/s | Wingspan | 2240 mm |
| Transport case size | 1500X750X630 | Cruising speed | 26-30 m/s |
| Wing Configuration | Tricopter | Self-cost | 25000 USD |

TRICOPTER

# UAV
## VTOL-3



**Full electrical VTOL drone (vertical take-off and landing)**

| | | | |
|---|---|---|---|
| Takeoff weight | 20 Kg | Max Payload | 5 Kg |
| Endurance | 4 Hours | | |
| Wind Resistance | 10 m/s | Wingspan | 1530 mm |
| Transport case size | 1700X750X630 | Cruising speed | 26-35 m/s |
| Wing Configuration | Monoplane | Self-cost | 30000 USD |

# UAV
## Light Drone

Designed for remote monitoring, observation in a wide range of weather conditions of the underlying surface, including complex terrain and water surface.

The aircraft is suitable for searching for objects at a considerable distance with an accurate determination of their geographical coordinates.

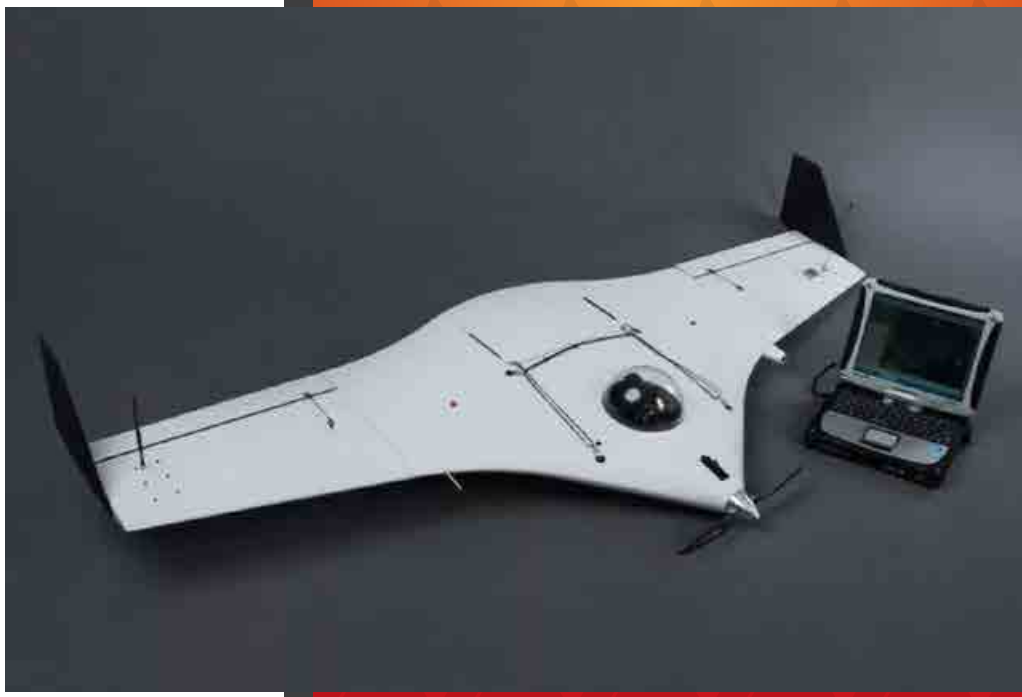
Effective in conducting large-scale aerial photography of extended objects (for example, oil and gas pipelines, forests, water resources, roads and railways, etc.).

Built according to the aerodynamic scheme "flying wing".

The launch of the UAV is carried out using a pneumatic catapult, landing - by parachute with an automatically filled shock-absorbing cushion.

The apparatus is powered by an internal combustion engine.

| | |
|---|---|
| Wingspan | 1680 mm |
| Video/radio channel range | 50 km/70 km |
| Take-off wight | 16 kg |
| Flight duration | 8 hour |
| Flight altitude | 3000 m |
| Cruising speed | 130-200 kmph |
| Takeoff | Pneumatic catapult |
| Landing | Parachute |
| Engine type | ICE pulling |



# UGV

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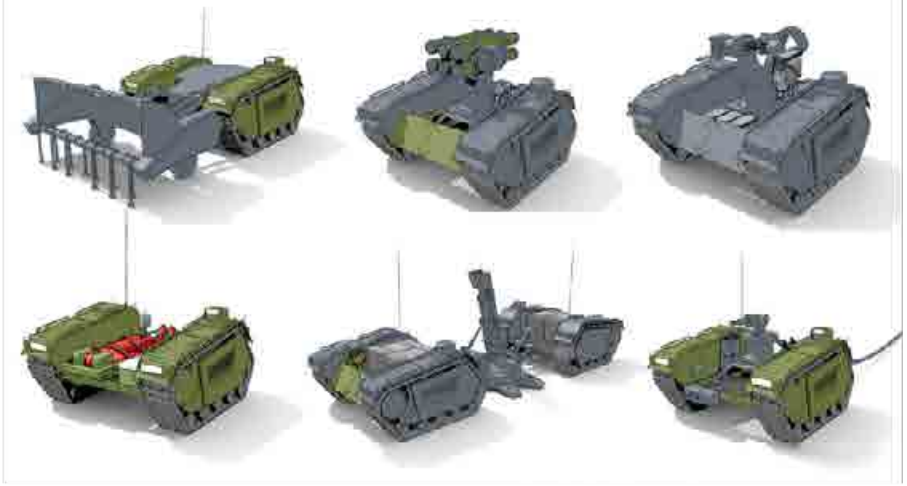
# Unmanned Ground Vehicles

An unmanned ground vehicle (UGV) is a vehicle that operates while in contact with the ground and without an onboard human presence. UGVs can be used for many applications where it may be inconvenient, dangerous, or impossible to have a human operator present. Generally, the vehicle will have a set of sensors to observe the environment, and will either autonomously make decisions about its behavior or pass the information to a human operator at a different location who will control the vehicle through teleoperation.

| | | | |
|---|---|---|---|
| Overall length | 3 m | Type | Platform |
| Overall width | 1 m | Type of drive | Crawler trolley |
| Overall high | 0.7 m | Engine | Electrical |
| Load capacity | 100 kg | Operating time | 6 hour |



UGV

# RE-EQUIPMENT TANKS

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# RE-EQUIPMENT

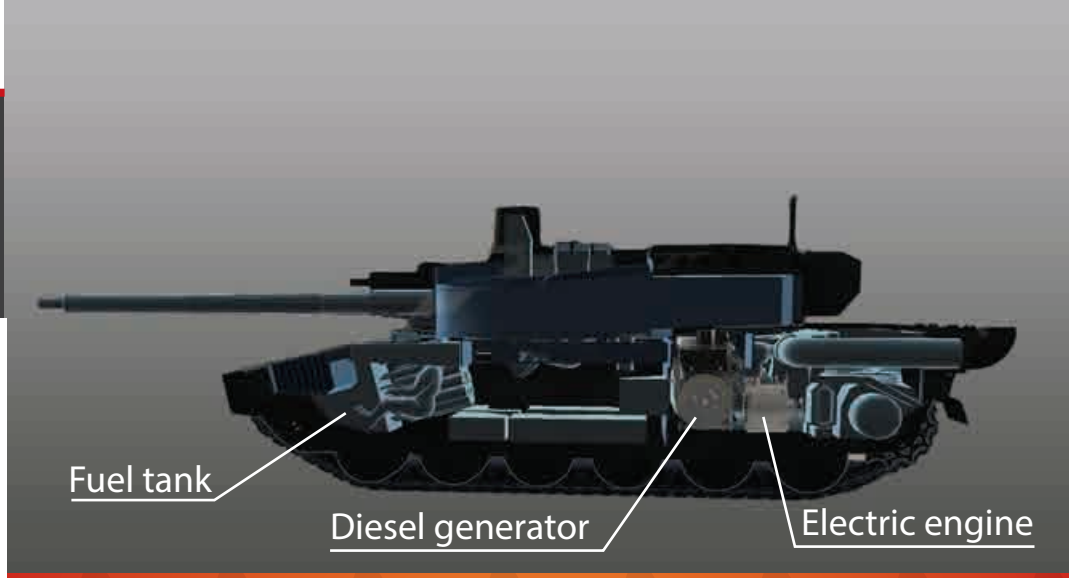
Re-equipment of any existing medium and heavy armored vehicles, tanks, infantry fighting vehicles, etc.
Replacement of the standard engine with a hybrid power plant.

Advantages:

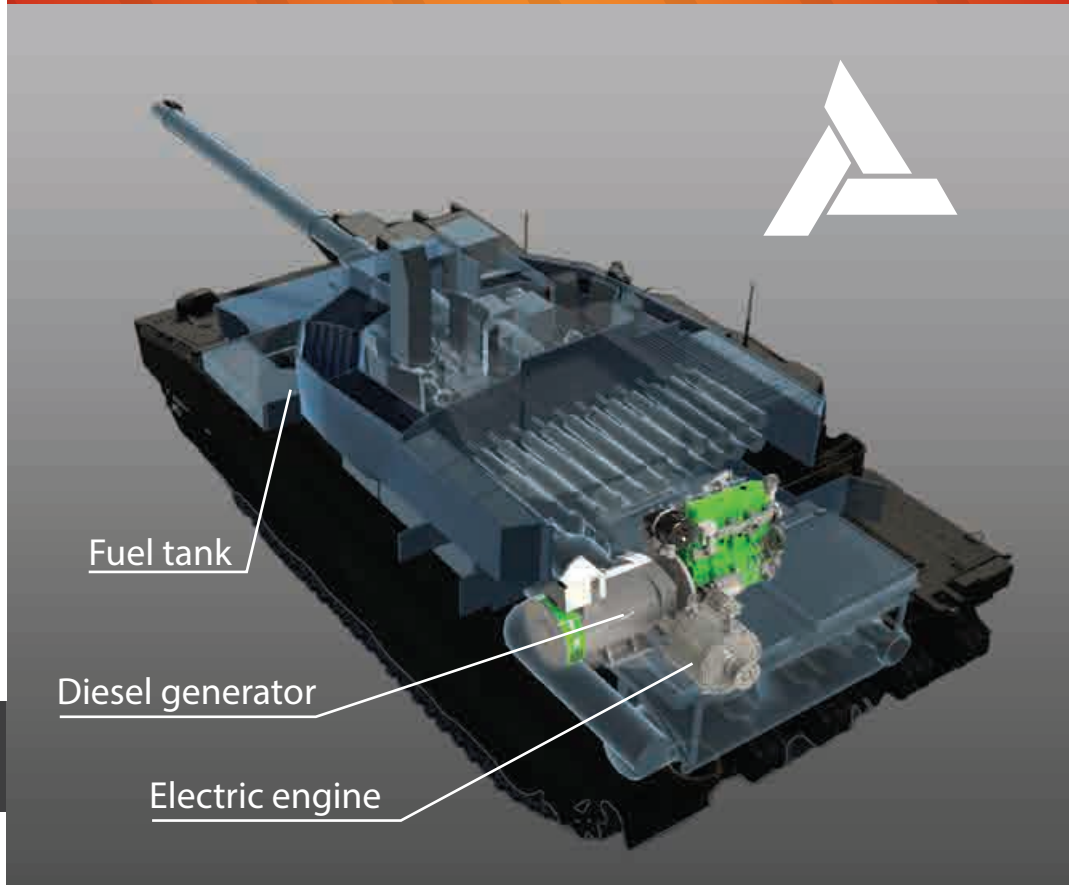
- Significantly increases the power of the vehicles
- Increasing the maximum speed up to 40%
- Increased mobility and maneuverability by 80%
- The volume of the fuel tank is reduced by 80%
- Fire risk reduced by 80%
- The efficiency of the electric motor is 96.67 %, the heat generated is only 3.33%
- Increase the power reserve by 2 times
- The silence movement mode appears only on electric traction.
- Mimnimize chance of detecting the vehicles
- The electric generator makes it possible to have a power plant in the field to repair the machine.
- Significantly reduces the fire hazard of the vehicle.
- Problems with dust and underwater crossings of vehicles are reduced.

Instant movement without pre-starting and warming up the engine.

There are no analogues of this system.




RE-EQUIPMENT



# RE-EQUIPMENT

## Compare table of engines

| | MTU MT-883 V-12 | Electric propulsion |
|---|---|---|
| Engine power, HP | 1630 | 2928 |
| Highway speed, km/h | 71 | 80 |
| Highway range, km | 550 | 800 |
| Power density, HP/T | 27,5 | 53,63 |
| Maximum torque, Nm | 5000 | 7680 |
| Rated speed, R.P.M. | 2500 | 3000 |
| Engine weight, Kg | 1800 | 400 |

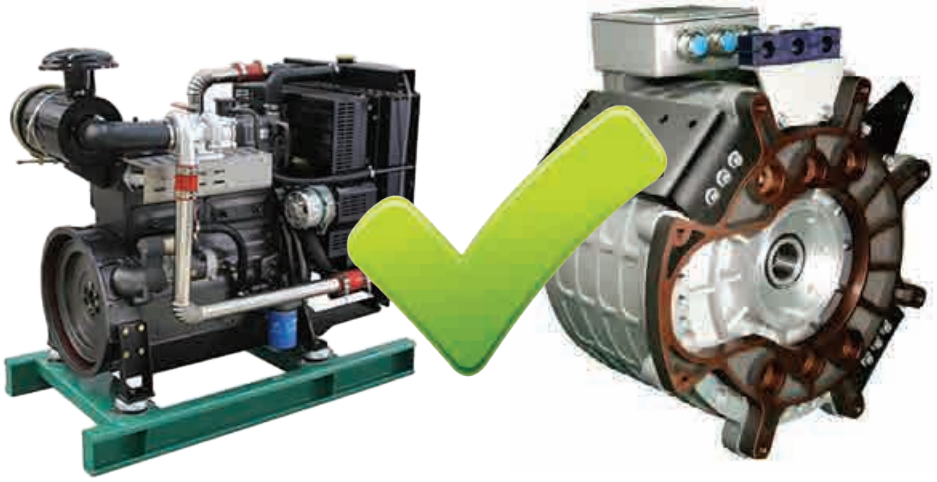
The structure of an electric motor is much simpler than an internal combustion engine, this significantly increases the life of the engine. There is no need to change oil and filters, the service interval is significantly increased.

The electric propulsion system is fireproof, unlike the internal combustion engine. Even if the batteries are damaged, they do not ignite.

Higher energy efficiency (efficiency of electric motors 96.67%) significantly reduces cabin heating, which reduces the load on the air conditioning system, crew and additional equipment.

The electric propulsion system is almost silent, which reduces the chance of detection and also makes the crew's stay inside much more comfortable.

On board a diesel generator is a power plant, you can power a field camp and perform any work in the desert

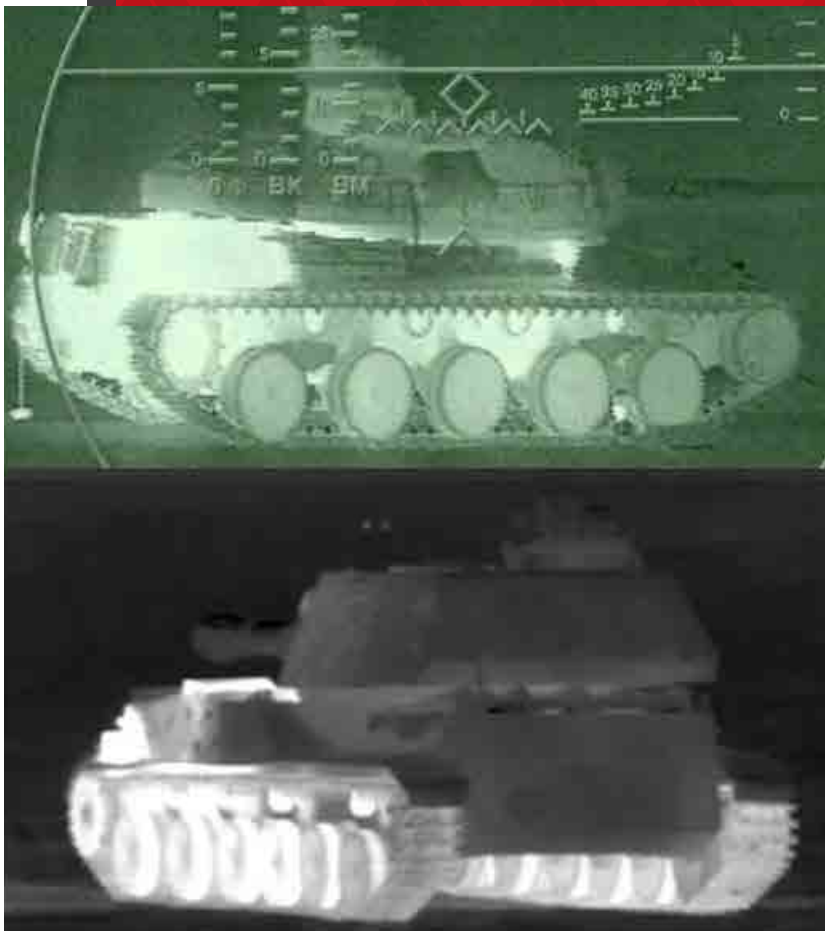


One of the main advantages of electric power is the ability to provide power to auxiliary systems (such as radar, guidance systems, air conditioning) silently. If the vehicle does not move, it does not make any noise, but at the same time, all equipment continues to function fully.

Ground combat vehicles with electric transmission will have better mobility and handling characteristics due to higher torque both at peak and at low RPM.

The volume of high-tech equipment on modern vehicles is increasing exponentially, which requires a constant increase in the power of the on-board network. In this regard, the installation of powerful batteries and generators on board military vehicles is inevitable, and the transition to electric motors is the most logical.

It is also possible to provide remote radio control of equipment.



Heating of the power plant strongly unmasks armored vehicles in the thermal range

RE-EQUIPMENT

# Advantages of replacing the internal combustion engine with an electric motor

- Noise level is reduced from 130 to 55 dB
- No overheating in the sun in the desert. Withstands temperatures up to +70 degrees C
- Easier to maintain, no need to replace engine oil, sand does not clog filters
- Weight is reduced by 2 tons
- Higher maneuverability increases by 80%
- More power reserve increases by 40%

# RE-EQUIPMENT VEHICLES

**Re-equipment of the buggy and off-road vehicles from the internal combustion engine to the electric/hybrid motor**

# RE-EQUIPMENT VEHICLES

## ELECTRIC/HYBRID

**Re-equipment of the MRAP and war vehicles from the internal combustion engine to the electric/hybrid motor**

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# RE-EQUIPMENT VESSELS

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# RE-EQUIPMENT VESSELS

# Advantages of replacing the internal combustion engine with an electric motor

**SILENCE**

The absence of noise and vibration make it possible to comfortably communicate and enjoy the surrounding views

**CONVENIENCE**

Lack of constant maintenance and problems with refueling on the water

**ENVIRONMENTAL FRIENDLINESS**

Electric vessels do not pollute the environment and are allowed in areas prohibited for vehicles with an internal combustion engine

**MANEUVERABILITY**

Higher maneuverability and smoothness increases by 80%

**ECONOMY**

Low maintenance cost of an electric motor compared to an internal combustion engine

**SERVICE LIFE**

The service life of an electric motor is several times longer compared to an internal combustion engine

**NO OVERHEATING**

No overheating in the sun in the desert. Withstands temperatures up to +70 degrees C

**If we compare all the factors, then we can calculate that a vehicle using an electric motor is 3-4 times more efficient than a similar vehicle with an internal combustion engine!**

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# RE-EQUIPMENT VESSELS

Re-equioment of military vessels, boats and yachts to electric/hybrid motors

# RE-EQUIPMENT VESSELS

## ELECTRIC/HYBRID

To increase the range and the possibility of using a backup engine in the event of a breakdown of the main engine, we can install an electric motor and a diesel generator.

**The use of a diesel generator allows:**

- increase range up to 3 times
- use 3 driving modes: hybrid mode, generator only mode, battery only mode
- use the diesel-electric station on board for charging, autonomous maintenance and repair work

# CONTACT:


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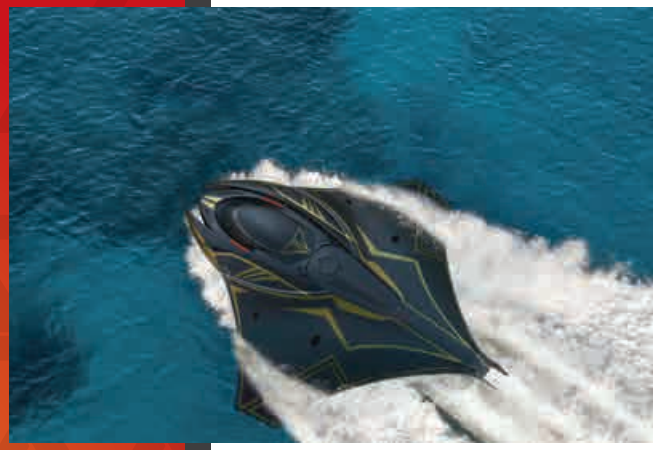

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