

**Press release. ALIENO unveiled its second hypercar model - UNUM, driven and controlled with electricity and air and reaching 584+ km/h (363+ mph).**

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## **ALIENO UNUM introduction:**

### **Introduction:**

The Bulgarian developer and manufacturer of electric hypercars ALIENO, unveiled its second hypercar model, named UNUM.

Founded in 2015 in Slashten, Bulgaria, ALIENO creates hypercars from the future.

The name of the brand is derived from the Italian word "alieno", which means "alien".

ALIENO UNUM is an electric hypercar that is driven and controlled with electricity and air and has a top speed of 584+ km/h (363+ mph). The top speed of ALIENO ARCANUM (the first debut model) has also been updated and is 568+ km/h (353+ mph).

The name of the model is derived from the Latin word "unum", which means "one".

It is based on innovative ALIENO technologies and know-how and is a 2-door / 2-seater robotic electric hypercar.

### **Packages:**

According to the type of its drive and control, ALIENO UNUM is available in the following 2 packages, available for all ALIENO models (including ARCANUM): THF driven and controlled with electricity and TRS driven and controlled with electricity and air.

THF stands for "The Heavenly Founder" and actually represents the ALIENO technology for drive and control with electricity, featured in ARCANUM.

TRS stands for "The Rocket Successor" and represents advanced ALIENO technology for drive and control with electricity and air, whose debut is precisely in the UNUM model.

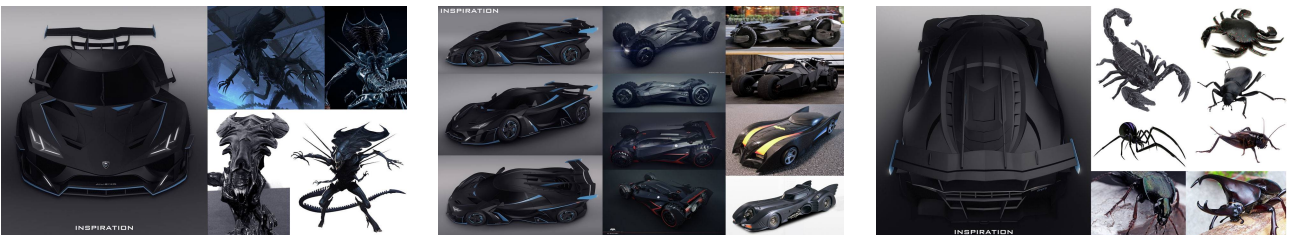


Ahmed Merchev, founder, CEO & CTO of ALIENO and chief constructor of UNUM, shares:

"Like its predecessor ARCANUM, UNUM is an electric hypercar from the future with a brutal technical superiority, which is in the basis of the DNA of the brand ALIENO, given our mission to create hypercars with alien technologies from the future into the present. The technologies, which we developed for its TRS package, have allowed us to reach new heights in the drive and the control, which make the hypercar not only more dynamic and more powerful, but also safer, given that we already rely not only on electricity, but also on air, the combination of which allowed us to fully tame this beast on the road. I can't wait we to demonstrate all of this, since we had to design not only the hypercars, but also the factory for their production. Fortunately, we have finished the design of our production factory in Tuhovishta, Bulgaria, we have received all the necessary permits and it is already in the construction phase, to accelerate which I hope we will be able to secure all the necessary remaining investments in a timely manner. I founded ALIENO at the end of 2015, almost 7 years have passed since then, and we currently expect to see our first hypercars on the road no earlier than 2024 - 2027. The wait is certainly worth it, given everything we create along the way. Like ARCANUM, our UNUM model is also executed in the leading design style of ALIENO with aggressive shapes with sharp edges, with sharp transitions between the surfaces, but not overburdened, rather elegant. The original source of this style, are the iconic models of Lamborghini. Not coincidentally, we have been considering for some time the possibility (of course purely hypothetical at this stage), that sometime in the future, ALIENO to acquire or partner with the Lamborghini brand. I believe, that in terms of the technologies, ALIENO can contribute to the development of the spirit of Lamborghini in the future. In fact, my favorite conventionally powered supercar is still the Lamborghini Aventador in sky blue color. If Lamborghini had an all-electric version of it with the latest technologies in 2015, maybe the ALIENO wouldn't have been born - I'd just buy it, not start building it."



Encho Enchev, CDO (Chief Design Officer) of ALIENO and chief designer of UNUM, shares: "Our UNUM model has the qualities of its predecessor (ARCANUM), but has a completely new vision and aesthetics. The shapes are still very sleek and aggressive, but even more interesting and complex. We want to avoid creating regular looking and boring models and we want our design to stand out from the rest. Therefore, one of our main tasks was to create a design that looks interesting and attractive from every possible angle. The aerodynamics of UNUM is very advanced and contribute to great stability at high speeds in straights and corners. The main source of inspiration for this model comes from the cult science fiction movie 'Aliens'. And in particular, the queen alien's head, designed by James Cameron himself. This influence can be noticed in the front part of the car and its hood. The second source of inspiration comes from another famous movie franchise. It is about the vehicles that Batman uses in these cult movies. A few years ago, I created 2 concept designs for vehicles for this super hero, that were very well received by the general public. That's why I incorporated some of the shapes and dynamics I used back then, into our new hypercar now. The latest inspiration comes from some insects and crustaceans."





**Availability:**

ALIENO manufactures UNUM only by customer pre-orders, which are already open for clients. Each of the cars is entirely assembled by hand by the team of ALIENO, but the components of the car are manufactured by hi-tech machines in the factory of ALIENO in Bulgaria, which is in a process of building and expansion.

**Price:**

ALIENO UNUM THF is available for pre-orders at the following base prices: 1 800 000 EUR for the RP2 version, 2 100 000 EUR for the RP3 version, 2 400 000 EUR for the RP4 version and 2 700 000 EUR for the RP5 version.

ALIENO UNUM TRS is available for pre-order at a base price starting at 3 000 000 EUR and going up to 4 500 000 EUR depending on its version.

The delivery time varies from 18 to 30 months, depending on the chosen modification (STR, TRC or RCE) and other options chosen by the customer.

The price of ALIENO ARCANUM (the first debut model) has also been updated - it is with 200 000 EUR cheaper compared to UNUM:

- ALIENO ARCANUM THF is available for pre-orders at the following base prices: 1 600 000 EUR for the RP2 version, 1 900 000 EUR for the RP3 version, 2 200 000 EUR for the RP4 version and 2 500 000 EUR for the RP5 version.

- ALIENO ARCANUM TRS is available for pre-order at a base price starting from 2 800 000 EUR and going up to 4 300 000 EUR depending on its version.

- The delivery time remains unchanged and varies from 18 to 30 months, depending on the chosen modification (STR, TRC or RCE) and other options chosen by the customer.



## **ALIENO UNUM THF presentation:**

Hypercar ALIENO UNUM THF is based on the THF package and is driven and controlled with electricity.

THF stands for "The Heavenly Founder" and actually represents the ALIENO technology for drive and control with electricity, featured in ARCANUM.



### **Versions:**

Based on their power, ALIENO UNUM THF is available in the following 4 versions, which are also applicable for all other ALIENO models: RP5 with power of 5221 hp, RP4 with power of 4351 hp, RP3 with power of 3481 hp and RP2 with power of 2610 hp. Where RP stands for "Raw Power", while the corresponding number after it (5, 4, 3, 2) shows the approximate power of the version in thousands of horsepower.

Acceleration times and other dynamic characteristics will be announced additionally.

### **Modifications:**

According to its purpose, each of the versions is available in 3 basic modifications: STR (Street), TRC (Track) and RCE (Race), whose basic dynamic characteristics are the same, but only differ by standards/homologations they meet.

The STR (Street) modification, is a street-legal car (a car approved for use on public roads) with global homologation.

The TRC (Track) modification is a track day car (car intended for use on a track) and does not fall under any restrictions, which are normally required by any homologations.

The RCE (Race) modification is a race car optimized to cover the requirements of specific race championships, while ALIENO is even prepared to modify the car to meet the requirements needed for the heir of LMP1 category of the 24 Hours of Le Mans and FIA World Endurance

Championship, immediately after the rules of the championship allow participation in it of an all-electric hypercars, powered by batteries, what ALIENO hypercars are.

### **Chassis & Body:**

ALIENO UNUM THF has an innovative ALIENO chassis, built entirely from pre-preg carbon-fiber, kevlar/aramid and aluminum honeycomb core and consists of monocoque, front and rear subframes. The bottom is further reinforced with pre-preg carbon-kevlar. There are structural reinforcements and crumple/deformation zones from pre-preg carbon-kevlar for front, rear, side, upper and lower impacts, as well as front and rear pre-preg carbon-kevlar crash structures. In addition to its low weight, safety and strength, the chassis also features maximum torsional rigidity and allows the construction of a lightweight and aerodynamic shape of the exterior.

All core nodes (elements) of the car are robotic and are regulated electronically.

The exterior is built completely from ALIENO robotic pre-preg carbon-kevlar panels.

ALIENO UNUM THF has two ALIENO robotic pre-preg carbon-kevlar Butterfly wing doors, ALIENO robotic intelligent air conditioning system, ALIENO aerodynamic side digital mirrors, ALIENO front and rear adaptive matrix LED lights and ALIENO robotic pre-preg carbon-kevlar wheels.

It is equipped with ALIENO pre-preg carbon-kevlar, fully air-conditioned, fully electrically-adjustable and with memory robotic sports and racing seats with memory foam, leather and Alcantara. It also has an ALIENO quick release, pre-preg carbon-kevlar racing type steering wheel with fully electrically-adjustable memory robotic steering column and robotic pedal box, as well as ALIENO robotic power steering with variable ratio, speed sensitive and mode selectable.

ALIENO UNUM THF can be equipped with few different versions of the interior, details of which will be further revealed. Among them, there are futuristic designs, as well as more moderate and classic designs, which will be available for all other models of ALIENO. The goal is to provide optimal choice for each customer, as when it comes to the interior space of the car, where the ALIENO customer will spend most of his time, he is not restricted with only one interior, that he may not like, but has the option to choose from few different ones, according to his own personal preferences. The interior is made from ALIENO pre-preg carbon-kevlar details, leather and Alcantara.

The technologies from UNUM THF are available for all other ALIENO models, all of which have unique and different exterior design, with which ALIENO aims to cover all major design styles, rather than being limited to one of them. The goal here again is to cover all preferences of the customers, rather than be limited to only one exterior design, which is not suitable for the taste of everyone.

Apart from the choice of version, modification and interior, ALIENO UNUM THF can be ordered with customer selectable battery, wheels, tires, steering wheel, seats and even rear wing, amongst different options offered by ALIENO. The UNUM THF model, like all other ALIENO models, has entirely modular architecture and allows unrestricted further modification, and of course, future upgrades with the latest technologies.

### **Aerodynamics:**

ALIENO UNUM THF has innovative ALIENO active, robotic and adaptive aerodynamics, with a lot of active robotic elements, flaps and mechanisms, part of which are visible in the exterior design, while others are inside of the car. This innovative technology, allows for an improved movement and channeling of the airflow around the car, with main purpose of increasing the stability and the

drag of the car to the road. Of course, depending on the need, this drag can be easily and precisely adjusted, for achieving higher speed.

### **Powertrain:**

ALIENO UNUM THF is driven by an innovative ALIENO direct drive electric powertrain, realized with from 3 (in the RP2 version) up to 6 (in the RP5 version) electric motors per wheel. Total of 12 (in the RP2 version) up to 24 electric motors (in the RP5 version). The electric motors are connected with a common connecting axis, to transfer the power to the according wheel through a half-shaft.

Instead of one big electric motor, several smaller ones are used, that are individually controlled (each from its own motor controller) according to the needs, which significantly increases the possibilities and efficiency of the car in all its modes and speeds and the efficiency reaches up to 97%.

The electric motors in use are type AC three-phase axial flux electric motors with powerful permanent magnets, that provide the current technological maximum as power and torque per unit weight and volume, since they combine very high power with very high torque of the electric motor in very low own weight and low volume of the electric motor. They have almost unlimited life span and maximum torque from 0 all the way to their maximum rpm.

The powertrain has 3 different main drive modes (Street, Track and Race), which are activated depending on the desired use of the car and the desired dynamic characteristics preferred by the driver. In any of these modes, through adjustments of the load on the respective front and rear electric motors (the electric motors connected to the front wheels and the electric motors connected to the rear wheels), there is the possibility to precisely change the distribution of power between the front wheels and the rear wheels from 0% to 100% and from 100% to 0% respectively. In any of these combinations, the control system has the possibility to provide energy efficient drive of the car.

Apart from that, innovative ALIENO real-time system for vector control of the torque of each wheel separately (called ALIENO all-wheel real-time torque vectoring system) has been implemented in the control system, thanks to the individual and direct drive through electric motors of each wheel (from 3 to 6 electric motors per wheel) and the lack of mechanical reducers containing heavy and bulky mechanical parts with friction parts.

Given the ALIENO direct drive, the torque of the powertrain and the wheels is identical and is 8880 Nm in the RP5 version, 7400 Nm in the RP4 version, 5920 Nm in the RP3 version, and 4440 Nm in the RP2 version, and is practically available from 0 to the maximum rpm of the electric motors, i.e. at any speed of the car.

### **Battery:**

ALIENO UNUM THF is powered by an innovative ALIENO battery, composed of Graphene LiPo cells and Supercapacitors.

Graphene LiPo cells are built through nanotechnologies forming graphene (a single layer of carbon atoms arranged in a hexagonal lattice). In comparison with the standard LiPo cells, the Graphene LiPo cells are capable of maintaining greater power output, have a higher energy density, lower internal resistance, higher discharge and charge rates, longer life span, and they stay way cooler and stable under full load and peak operating modes.

The supercapacitors, accumulate energy from the electric motors when the car is braking and they give it back to the powertrain when needed, mainly in the peak dynamic modes - when starting, accelerating and braking the car.

The battery is available in the following 3 variants: SBP (Street Battery Pack), with a capacity of 180 kWh, TBP (Track Battery Pack) with a capacity of 120 kWh and RBP (Race Battery Pack) with capacity of 60 kWh. They cover all practical needs: the SBP battery provides a long mileage, reaching up to 1020 km on a single charge, the TBP battery provides enough mileage of several laps on a track, while the RBP battery provides the lowest weight and respectively maximum dynamic characteristics of the car during races.

At maximum load in mode Race, on a single charge, depending on the battery with which it is equipped (variant RBP, TBP or SBP), its version and modification, UNUM THF can complete from 1 to 3 full laps on the track Nürburgring (on which the race 24 Hours Nürburgring takes place) and from 2 to 6 full laps on the track Circuit de la Sarthe (on which the race 24 Hours of Le Mans takes place).

The maximum voltage of the battery is 800V, as it is designed to provide huge power, where in the SBP variant it can reach up to 11.7 MW continuous power and 23.4 MW peak power.

Furthermore, the battery is capable of absorbing huge power during charging and regenerative braking, reaching up to 2.7 MW in the SBP variant.

The battery consists of few ALIENO Plug & Play interchangeable modules, as the car automatically adjusts its parameters according to the number and the status of the installed modules. It is possible to install different number of modules, with the idea of providing different capacities between the three base variants of the battery. In this case, according to the desired number of battery modules, "the alien" guides the user, where exactly he should place the modules, in order to achieve maximum stability and lowest center of gravity of the car, and of course achieving optimal weight distribution between the front and rear axles.

The minimum capacity of the battery that needs to be available to reach the maximum power of the car is 30 kWh for the RP5 version, 25 kWh for the RP4 version, 20 kWh for the RP3 version and 15 kWh for the RP2 version, which provides opportunity for significant optimization of the weight and the dynamic characteristics of the car on a track during track days and races (by installing just the number of battery modules required for the particular purpose).

The ALIENO Plug & Play interchangeable modules, also provide an option for easy replacement and upgrade of the battery with a new one. They have multiple built-in safety and security systems.

ALIENO UNUM THF has several different options for charging of the battery, including a wireless inductive, 3-phase 22 kW on-board and 350 kW DC Combo (CCS). Optionally available is also 400 kW DC CHAdeMO.

With a 350 kW DC Combo (CCS) charging station, from 0 to 100% SoC (State of charge), the SBP battery is charged for 30 min, the TBP battery for 20 min, and the RBP battery for 10 min.

Furthermore, the battery is designed in such a way, that with a special ALIENO DC charging station (900 kW DC for the RBP battery, 1800 kW DC for the TBP battery and 2700 kW DC for the SBP battery), designed and built by ALIENO upon customer order, it can be charged from 0 to 100% SoC for 4 min, and from 0 to 80% SoC for 3.2 min.



### **Dimensions, Weight and Power-to-weight ratio:**

ALIENO UNUM THF has overall length of 5240 mm, overall width of 2180 mm (without and with the ALIENO aerodynamic side digital mirrors) and wheelbase of 3100 mm.

The height of the car, depending on the setting of the ground clearance, varies from 1170 mm to 1200 mm in Race mode, from 1190 mm to 1230 mm in Track mode and from 1220 mm to 1270 mm in Street mode.

The ground clearance of the car, is fully electrically-adjustable, as on the front and on the center of the car can be adjusted from 60 mm to 90 mm in Race mode, from 80 mm to 120 mm in Track mode and from 110 mm to 160 mm in Street mode, while at the rear it is with 40 mm larger.

The weight of the car, varies depending on its version and modification, starting from 1620 kg. For all versions and modifications, a power-to-weight ratio of more than 1 hp/kg is achieved, ranging from 1.04 hp/kg to 2.64 hp/kg, depending on the version and modification of the car.

### **Safety systems:**

In addition to a total of 8 airbags (4 for the driver and 4 for the passenger) and 2 racing 6-point seatbelts / harnesses (one for the driver and one for the passenger), ALIENO UNUM THF also has numerous innovative ALIENO structural, dynamic and active intelligent safety systems.

### **Advanced driver-assistance systems (ADAS):**

ALIENO UNUM THF possesses multiple innovative ALIENO ADAS systems (Advanced driver-assistance systems), the main one of which is called ALIENO Artificial Intelligence (AAI) or "The Alien" (TA). In reality the car is an "alien" ("alien robot", "intelligent robot on wheels"), who assists the driver, prevents him from making mistakes and teaches him how to improve his driving skills, habits and style, with the sole purpose of being able to explore and use the full potential of the car.

UNUM THF has a number of specialized sensors and performs continuous real-time diagnostic and exploration, not only of the external environment that surrounds it and the interior environment of the car, but also of all its systems, making its own self-diagnostic, in order to predict damages and dangerous situations, and dealing with emergency cases.

The ADAS systems of UNUM THF gather information from multiple sensors, which the car is equipped with, including 17 cameras, 1 LiDAR, 8 radars, 1 GPS sensor, 1 IMU sensor and a large number of other sensors.

UNUM THF has an ALIENO front stereo vision, consisting of a module with a 2 cameras and an 1 LiDAR, mounted from the inside behind the upper central part of the windshield. It has also an ALIENO rear stereo vision, consisting of 2 cameras, mounted at the top of the rear third stop-brake light of the car.

The vision of the car in all directions is complimented by ALIENO aerodynamic left and right side digital mirrors, each of which instead of a standard mirror is equipped with 5 cameras combined in aerodynamic detail. They are used also for a keyless access, through facial, iris and retina recognition, speech and fingerprint recognition, and allowing different levels of security to be set.

In addition, there are cameras and other sensors, which monitor the environment in the interior, the condition and the emotions of the driver and the passenger. They are used also for keyless starting of the car and diagnosing the state of both the driver and passenger.

## **Suspension:**

UNUM THF has front and rear innovative ALIENO robotic suspension with double wishbone with push-rod and rocker arm architecture, along with adjustable anti-roll bar. Electronically adjustable dampers and active ride-height, fully independent per wheel. With memory, factory modes and custom user modes.

Optionally, there is also a pneumatic quick-lift system with 4 air-jacks for easy pit-service operations during racetrack on circuits.

## **Steering:**

UNUM THF has ALIENO all-wheel steering, given that in addition to the main front steering system controlled by the driver through the steering wheel, which controls the steering of the front wheels, UNUM THF also has active, robotic and adaptive rear steering system, that can turn the rear wheels up to 3 degrees in either direction for faster and more confident cornering, better maneuverability, increased stability and more grip.

The exact steering angle of the rear wheels is determined by the main ALIENO ADAS system ("The Alien") based on current parameters such as selected main drive mode (Street, Track or Race), speed, acceleration, throttle and brake positions, steering angle of the front wheels set via the steering wheel, slip angle, lateral acceleration, position of the car on the road, slope of the road and others.

At low speeds, the system turns the rear wheels in the opposite direction to the direction of turning of the front wheels. This gives of UNUM THF a faster turn, as it effectively shortens the turning radius of the car.

At high speeds, the system turns the rear wheels in a direction coinciding with the direction of turning of the front wheels, which virtually leads to lengthening of the wheelbase of the car. This provides increased stability on the road and improves cornering efficiency on the track.

As a result, the system increases the car's responsiveness at both low and high speeds, including at a turning maneuver, reversing maneuver, entering and exiting a parking space, avoid obstacles, highway lane change, overtaking maneuver. It also minimizes both understeer and oversteer.

## **Braking systems:**

ALIENO UNUM THF has three braking systems: ALIENO hydraulic braking system, ALIENO regenerative electromagnetic braking system (which is expected to become the main braking system in the future for all ALIENO models) and ALIENO robotic air braking system. Optionally, a fourth braking system is also available - ALIENO air brake parachute system with drag racing parachutes.

The ALIENO hydraulic braking system is based on equal in size and characteristics brake calipers and brake discs on the front and rear wheels, and more precisely, high-strength forged aluminum monobloc fixed brake calipers with 10 titanium pistons (titanium monobloc fixed brake calipers are optionally available) and huge carbon-ceramic brake discs with a diameter of 440 mm (17.32") and a thickness of 40 mm (1.57"). Other sizes and carbon-carbon brake discs are also optionally available.

The innovative ALIENO regenerative electromagnetic braking system is implemented by the control system with the motor controllers, by using of the electric motors in generator mode (in a passive-braking with recuperation and accumulation of energy), and also through forced rotation

of the electric motors in the opposite direction of the direction of movement of the car (in an active-braking with energy consumption).

When passively braking with recuperation and accumulation of energy, the control system switches part or all electric motors into generator mode. The recuperated energy generated while braking, is accumulated into the battery and the supercapacitors, which are recharged from the energy accumulated in the braking process (the energy gathered by the electric motors working in generator mode). Passive-braking with recuperation and accumulation of energy is possible when smoothly braking the car (smoothly reducing the speed of the car).

When actively braking with energy consumption, part or all of the electric motors are forced to rotate in the opposite direction of the direction of movement of the car, in order to achieve braking force on the wheels. In this case, energy from the battery and the supercapacitors can also be consumed, if the energy generated during braking (from the electric motors operating in generator mode) is insufficient. Active-braking with energy consumption, is applied at more abruptly aggressive braking, when requiring the car to brake in the shortest time and distance.

The innovative ALIENO robotic air braking system, is realized through multiple active robotic elements, flaps and mechanisms, that make up the innovative ALIENO active, robotic and adaptive aerodynamics of the car. That includes also the active robotic rear wing, which moves in different positions based on the needs, providing not only maximum grip in corners or at maximum speed, but also acts as an instantaneous air brake in case of extreme braking.

#### **Wheels & Tires:**

To ensure better grip with the road surface, ALIENO UNUM THF has extremely wide front and rear tires (which are the same in size), mounted on ALIENO robotic pre-preg carbon-kevlar wheels.

The STR (Street) modification is available with 21" wheels and 355/25ZR21 tires, but 325/30ZR21 tires are optionally available, as well as 20" wheels and 345/30ZR20 tires.

The TRC (Track) modification is available with 20" wheels and 345/30ZR20 tires, but 21" wheels and 325/30ZR21 tires are optionally available.

The Race (RCE) modification is available with 19" wheels and racing slicks at customer's choice.

The innovative ALIENO robotic pre-preg carbon-kevlar wheels, in addition to its low weight, unique design, Center Lock, strength and maximum torsional rigidity, are also characterized with a robotic construction with protective mechanisms and built-in sensors interacting with the intelligence of the car ("the alien"), in order to predict and detect damage to tires, wheels and brakes, and to minimize damages in case of imbalance, loss of pressure, wear, overheating, rupture or bursting (blowout) of a tire while driving the car. UNUM THF performs continuous real-time diagnostics of all its nodes, including the tires, the wheels and the braking systems, as adapting its behavior according to their condition.



**ALIENO UNUM THF specification:**

<https://alieno.io/thf-specification/>



## **ALIENO UNUM TRS presentation:**

Hypercar ALIENO UNUM TRS is based on the TRS package and is driven and controlled with electricity and air.

TRS stands for "The Rocket Successor" and represents advanced ALIENO technology for drive and control with electricity and air, whose debut is precisely in the UNUM model.



TRS is a complement of a THF, upgrading it with the ability to drive and control not only with electricity, but also with air. This synergy is achieved through a system called ALIENO octopus synergistic system.

The TRS drive and control with air is carried out by an innovative system called ALIENO cold air thruster system, implemented with up to 24 pieces of ALIENO rocket cold air thrusters, but they are only a small part of the TRS package, which through ALIENO octopus synergistic system is integrated into all key systems of the hypercar, and in practice differs drastically from anything similar known up to now.

The Cold Gas Thruster, is a type of rocket engine, which uses the expansion of pressurized gas to generate thrust. The gas used in ALIENO UNUM TRS is ordinary air and therefore its thrusters are Cold Air Thrusters.

The thrusters of ALIENO UNUM TRS are with variable geometry and thrust direction. In this regard, in the TRS control system has implemented an innovative ALIENO real-time Thrust Vector Control (TVC) system, called ALIENO real-time thrust vectoring system, capable of changing the direction of the thrust of the thrusters, to control the position of the hypercar on the road.

The main thrusters in ALIENO UNUM TRS are located under the different grilles of its exterior, therefore they do not change its silhouette. The grilles in question are made of titanium and have a special geometry to optimize the thrust from the thrusters.



Ahmed Merchev, founder, CEO & CTO of ALIENO and chief constructor of UNUM, adds:  
"The thrusters of ALIENO UNUM TRS are made from titanium, steel and Inconel, by milling with robotic multi-axis metal milling machines and through additive manufacturing of metal parts with laser 3D printers for metal, with what machines we are gradually equipping our ALIENO production factory in Tuhovishta, Bulgaria. The laser 3D printers for metal are of the Direct Metal Laser Sintering (DMLS) type, with which NASA makes the rocket injectors for the Space Launch System (SLS) rocket, SpaceX manufactures the combustion chamber of the SuperDraco rocket thrusters for its Crew Dragon spacecraft, Rocket Lab manufactures the Rutherford rocket engines for its Electron rocket, and Bugatti the brake calipers of its Chiron hypercar."

The compressed air in ALIENO UNUM TRS, is stored under a pressure of up to 700 bar (10 152 psi) in a special ALIENO cylinder made of composite materials, located behind the seats and above the battery.

The charging of the cylinder with compressed air, is done by one of the following three available options: from the built-in ALIENO UNUM TRS electric compressor, from a more powerful external compressor for faster charging, or from a larger external container with compressed air. The mentioned external elements are designed and built by ALIENO at the customer's request.

The built-in electric compressor is supplied with electricity through one of the following three available options: from the charger of the hypercar while charging it with electricity, from the battery or during passive-braking with recuperation and accumulation of energy, when the energy obtained from the innovative ALIENO regenerative electromagnetic braking system, in addition to charging the battery, it can also be used to power the compressor, with the battery/compressor priority and ratio being adjustable, including by the user. At times when the battery is fully charged and cannot absorb any more energy, the braking energy is used for charging with air, which increases the efficiency of the regenerative electromagnetic braking system.

The thrusters of the ALIENO UNUM TRS hypercar, help not only its drive, but also its control and aerodynamics, given that, in addition to acceleration, they can also be used as a brake, as well as to correct its trajectory of movement, and in addition, when necessary, provide a huge downforce for its additional stabilization. For this purpose, in the ALIENO UNUM TRS hypercar, the three



different main drive modes (Street, Track and Race) known from the ARCANUM THF model and also available in UNUM THF, have an additional functionality called Rocket, from which the capabilities, functions and behavior of the TRS package are activated and adjusted.

The thrusters are particularly effective at extreme acceleration, extreme braking, high speed movement, when turning and in any extreme situation in order to avoid obstacles or other dangerous situation on the road. Their most significant application, is in the preservation and saving of life, given that the TRS package provides effective tools for preventive response in the extremely limited time window of the typical life-threatening situations accompanying the road accidents.



Ahmed Merchev, founder, CEO & CTO of ALIENO and chief constructor of UNUM, adds: "The calculations and simulations with the ALIENO ACRYPTO supercomputer, have shown us that in certain extreme situations, the typical car systems, no matter how much we improve them, are powerless due to the limited grip of the car to the road. At the standard cars, that grip is determined by the limited contact area of the tires with the road and the aerodynamics of the car. In UNUM THF, the grip is improved through the ALIENO active, robotic and adaptive aerodynamics, and in UNUM TRS, the TRS package provides an opportunity to increase the grip of the hypercar to the road in an unthinkable way until now. In effect, with these two independent sources of 'fuel' for 'reactions' (electricity and air) in the ALIENO UNUM TRS hypercar, under the control of 'The Alien' (TA) system, are overcome the typical limitations that each of them has separately, which helps to improve not only its drive, but also its control and aerodynamics. In theory, the TRS package is able to stabilize the UNUM hypercar, even in situations of complete loss of grip of the tires to the road. This was unthinkable before and is a major breakthrough for the maneuverability, safety and enjoyment of the hypercars. I hope that our developments will help to implement similar technologies in mass cars as well."

In addition to all this, the TRS package also represents a unique synergistic addition to all other systems of the ALIENO UNUM TRS hypercar, completely unknown until now in the automotive world, given that it also includes the so-called ALIENO blissful comfort system and ALIENO save me always system.

ALIENO blissful comfort system realizes the following:

- in extreme operating modes, the compressed air is used for additional cooling of the braking mechanisms, electric motors, controllers and the battery of the hypercar, in order to prevent overheating;
- in an event of damage causing overheating of the battery, ensures its cooling in order to prevent setting fire to it;
- to achieve extreme acceleration or extreme braking, the thermal energy from the operation of the braking mechanisms, electric motors, controllers and the battery is used to heat the compressed air in order to increase the thrust of the thrusters;
- the compressed air is used for additional cooling or heating of the cabin and interior of the hypercar, the tires, braking mechanisms, electric motors, controllers and the battery;
- the compressed air is used for self-cleaning and defrosting of the front and side windows, cameras and sensors of the hypercar;
- provides the possibility for additional equipment with ALIENO air suspension for quick change of the ground clearance and additional modes with more comfortable suspension settings of the hypercar;
- provides the possibility for additional equipment with a special ALIENO exhaust system, when the compressed air passes through it, it provides an authentic sound of choice of the hypercar - it can be completely silent or sound like some of the epic conventional engines.

ALIENO save me always system realizes the following:

- in case of loss of a grip of the tires to the road (leading to partial or complete loss of control), which cannot be compensated by the active aerodynamics, through the thrusters, provides thrust in the respective directions to restore the grip, stabilize and restore the trajectory of movement of the hypercar or bring it to a safe full stop;
- in a situation with an impending collision or impact, through the thrusters, corrects the trajectory of movement of the hypercar in order to prevent it;
- in a situation with an unavoidable collision or impact, through the thrusters, it provides thrust in the direction opposite to the direction of the collision/impact in order to limit its consequences, thereby practically extending the crash structures of the hypercar;
- when driving on a contaminated road surface (for example with sand or gravel), when necessary, a powerful air jet is released in front of the tires of the hypercar, which pushes the pollutants aside from the road surface in front of the tire and prevents skidding, loss of control, damage or burst of a tire;
- when driving in rainy weather with a wet road surface, when necessary, a powerful air jet is released in front of the tires of the hypercar, which pushes the rainwater aside, dries the road surface in front of the tire and prevents aquaplaning;
- when driving in winter conditions with snowy and/or icy road surface, when necessary, a powerful hot air jet is released in front of the tires of the hypercar, which melts the snow/ice, pushes it aside from the road surface in front of the tire and prevents skidding and loss of control;
- when the tire burst, the compressed air restores the pressure in it as much as possible in motion, in order to maintain the correct trajectory of movement of the hypercar until it stops safely;
- in an event of a road accident that caused the hypercar to fall into a pool of water with the risk of its sinking, through the compressed air, additional pressure is created in the cabin to limit its filling with water, in order to increase the critical time for reaction and rescue of the passengers, and the chassis is kept above the surface as far as possible;
- in an event of a sudden failure or complete discharge of the battery, it provides the possibility of a short additional movement only with air and a safe stop of the hypercar.





The electric motors, battery and essentially all major nodes and systems of the ALIENO UNUM TRS, are basically identical or similar to those of the ALIENO UNUM THF.

Based on their power, ALIENO UNUM TRS is available in several versions, that differ in the number of electric motors, the number of thrusters and the volume of the composite cylinder with compressed air.

Like ALIENO UNUM THF, according to its purpose, each of the ALIENO UNUM TRS versions is available in 3 basic modifications: STR (Street), TRC (Track) and RCE (Race), whose basic dynamic characteristics, although are the same and differ mainly by the standards/homologations they meet, also differ in their permitted thrust, range, equipment level and the operating modes of the TRS package, given their specific application.

Details for the TRS package, its versions and modifications, as well as the acceleration times and other dynamic characteristics of the ALIENO UNUM TRS hypercar, will be announced additionally.

## **ALIENO UNUM image gallery:**

### **Image gallery 3200x1800:**

<https://alieno.io/unum-image-gallery-3200x1800/>

### **Image gallery 1920x1080:**

<https://alieno.io/unum-image-gallery-1920x1080/>

### **Image gallery 1280x720:**

<https://alieno.io/unum-image-gallery-1280x720/>

### **Image gallery 1024x576:**

<https://alieno.io/unum-image-gallery-1024x576/>



## **About ALIENO:**

### **ALIENO - HYPERCARS FROM THE FUTURE**

ALIENO designs, develops and produces all-electric hypercars with futuristic sports design with instant WOW! effect, racing capabilities, robotic systems, active aerodynamics, artificial intelligence and phenomenal power.

Founded in 2015 in Slashten, Bulgaria, ALIENO creates hypercars from the future, built on the passion, vision and knowledge of its founder, CEO and CTO, Ahmed Merchev.

ALIENO all-electric hypercars have brutal technical superiority and are entirely own in-house development of ALIENO Ltd, based on own innovative patented technologies.

The name of the brand is derived from the Italian word "alieno", which means "alien".

Since the all-electric hypercars ALIENO are an own in-house development of ALIENO Ltd, this allows them to be manufactured, improved and perfected within the company and to directly guarantee and control their high technical parameters and innovations in every aspect.

To achieve its goals, ALIENO relies on its own innovative technology solutions and know-how, its own production facilities and its own talented R&D, production and administrative team, with which the complete cycle closes, from the idea to the realization of the finished commercial products.

In this connection, except of design, development and production of the electric hypercars, ALIENO is building its own manufacturing factory with campus, test track and design, research and development (R&D) department.

The factory of ALIENO, which is in process of building and expansion, is based in Tuhovishta, Bulgaria.

For the manufacturing of the ALIENO hypercars, in the factory of ALIENO have already been delivered all major production machines.

It is expected, ALIENO to present many new models all-electric hypercars. They will be offered at prices equal to the prices of the already presented ARCANUM and UNUM models, while having similar technical and dynamic characteristics, but entirely different exterior designs. With that, ALIENO aims to cover different design styles, thus enlarging the reach and potential customers, offering a car for each individual taste.

Unlike other car brands, ALIENO is not limited to a specific design style, but rather from the very beginning, will offer cars in any of the main design styles, including rounded with soft shapes, more moderate and conservative, sharp-edged with aggressive shapes, brutally-aggressive and futuristic designs. This is possible, since all ALIENO hypercars are entirely custom handmade and in small series, taking into account the exact personal preferences of each individual client. Furthermore, all models with the same body style, for example 2-door / 2-seater Coupe, are based on the same basic modular platform, developed and produced by ALIENO, so for changing the exterior design and offering many models with entirely different exterior vision, it is not necessary to modify the whole production line, which costs millions, like the conventional auto manufacturers must.

Despite this variety, the leading design style of ALIENO, is aggressive shapes with sharp edges, with sharp transitions between the surfaces, but not overburdened, rather elegant. The main colors of the brand are blue, black, grey and carbon.

Despite of the variety and differences in the design styles, the DNA of the brand is integrated into each of the ALIENO models and provides a hypercar from the future with brutal technical superiority.

For funding its activity, in 2021 ALIENO opened Series A investment round, with which it aims to attract 9 million EUR foreign investments for 10% equity stake in the company, at a company's valuation in 2021 of 90 million EUR (about 100 million USD). The minimum possible amount of investment within this round, is 900 EUR, for a share of 0.001% of the company.

Majority shareholder in ALIENO is the founder, CEO and CTO, Ahmed Merchev.

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<https://youtube.com/alienohypercars>

Twitter:

<https://twitter.com/alienohypercars>

Telegram:

<https://t.me/alienotoken>

LinkedIn:

<https://www.linkedin.com/company/alienohypercars>

Bitcointalk:

<https://bitcointalk.org/index.php?topic=5378370>

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