

The logo features the word "MILAN" in a large, bold, white, italicized sans-serif font. Below it, the word "COMPRO" is written in a smaller, white, italicized sans-serif font. The background is a dark blue gradient with a faint, glowing circuit board pattern. Several blue square chips with the "MILAN" logo are scattered across the image, appearing to be part of the circuitry.

MILAN
COMPRO

INNOVATION, EXPERIENCE, PASSION

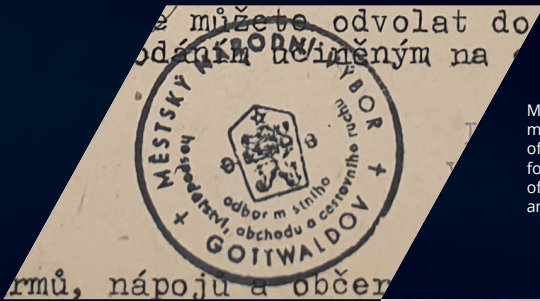
go through every piece of specialty electronics we create

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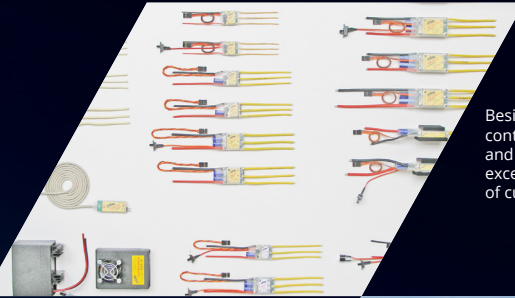
HISTORY

1990



MGM COMPRO amazed the market with the world's first line of intelligent speed controllers for DC electric motors full of outstanding parameters and innovative features.

2002



Besides electronic speed controllers, BMS, Battery Packs and Chargers MGM COMPRO excels also in the field of custom-built solutions.

Company founding, entering the market with unique solutions in the field of medical devices and other special processor-controlled electronics.



Launch of the first line of speed controllers for BLDC electric motors with unrivalled motor management, smooth motor starting, connectivity and exceptional reliability.



1997

2010

2013



Projects focusing on the development of high-power electric propulsion systems for propeller and ducted fan applications.

The world premiere of the first fully electric 2-seater LSA airplane equipped with the MGM COMPRO electric propulsion system replacing conventional Rotax 912, which was immediately followed with Airbus E-Fan as well powered by MGM COMPRO components.

MGM COMPRO electric propulsion system made the first Airbus Group's electric aircraft fly, starting the era of manned electric flying.

2019



MGM COMPRO works on the development of the 400kW propulsion system, which should mainly find its use in the commuter class aircraft and serve as an "e-alternative" for the lower performance classes of the most used turboprop engines.

2018



Besides standard deliveries for marine industry, MGM COMPRO newly starts to supply innovative propulsion systems for boats, covering various power ranges and bringing advanced features and parameters.

2021



OUR PARTNERS

UL39



AVILUS



ALUDA AERONAUTICS / AIR SPEEDER



AIREV AERO



CYCLOTECH



EV-55



HYUNDAI



VOLOCOPTER



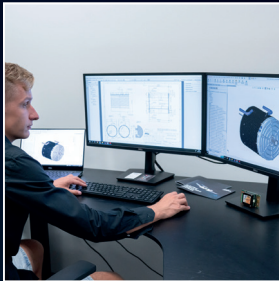
TURKISH AIRLINES



UMILES



MAIN FIELDS OF ACTIVITY



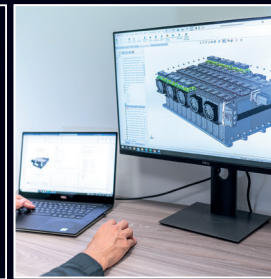
HIGH POWER ELECTRIC MOTORS

We design and produce outstanding Electric Motors for various applications and power ranges of 500KW and more, also including gearbox, if required.



ELECTRONIC INVERTERS & MOST ADVANCED ESCS

Our Electronic Speed Controllers (Inverters) represent the most advanced Intelligent electric motor control for all power ranges, featuring state of the art safety features and parameters.

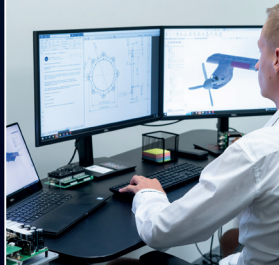


COMPLEX BATTERY SYSTEMS

Our team of engineers design complete electrical and mechanical layout of the battery systems based on specific requirements of application, followed by the professional production. Every project starts with simulations and ends with certification and mass production.

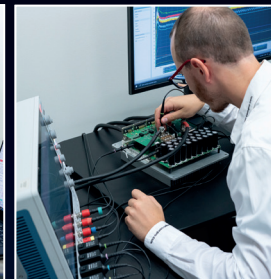
AVIATION PROPULSION SYSTEMS (HIGH POWER)

For all power requirements, for various Aviation applications, MGM COMPRO delivers special intelligent and safe Electric Drives for Airplanes, EVTOLS, UAVs and much more.



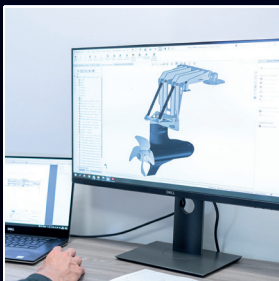
SPECIALTY ELECTRONICS

Experience, capabilities, test equipment, innovative and constructive way of thinking results into design, development and production of various specialty Electronics, including for example medical application, VITA, or patented solutions for photovoltaic systems.



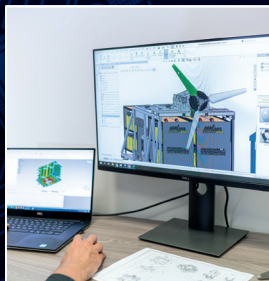
BMS, CONTACTORS, CHARGERS, CBS AND OTHERS

Portfolio includes intelligent BMS (Battery Management Systems), Electronic and Hybrid Contactors, Chargers and wide range of other products resulting in covering all components of propulsion systems.



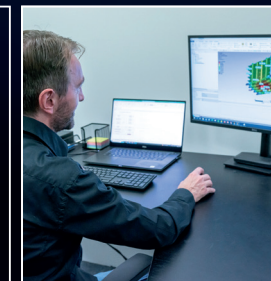
MARINE PROPULSION SYSTEMS

Based on experience and requirements of our partners from Marine industry MGM COMPRO designs and produces innovative Electric Propulsion Systems for boats and other marine application.



INTERNAL TESTING EQUIPMENT

Our engineering department, simulation software, experience and competence allow us to design our own test benches and equipment, enabling our team to provide our customers with unique sets of



ANSYS SIMULATIONS & CALCULATIONS

All our products and development projects are prior to its prototyping validated by using the most advanced simulations and calculations to reach the highest possible effectivity and fast progress.

PROPULSION SYSTEMS

AUXILIARY ELECTRONICS

Connectors, Contactors, DC/DC Convertors, Fuses, Antisparks, Throttle sticks, Cabling



DISPLAY UNIT

- graphic / text versions
- CAN / RS TTL / RS485 communication



MOTOR

- up to 400 kW
- BLDC (PMSM)
- various KV's
- advanced redundancy
- air / fluid / hybrid cooled
- maintenance free operation
- great weight to performance ratio
- multiwinding configuration possibility
- inrunner types as well as outrunner types



CHARGER

- various charging standarts (incl. automotive)
- suitable for all lithium based types of cells (Li-Ion, Li-Pol, LiFePO4, ...)
- suitable for any battery voltage and capacity
- compatible with various countries grid voltage



ESC

- from 1 kW up to 400 kW
- 63V, 120V, 400V and up to 800V
- air / fluid / hybrid cooled
- wide range of customizable configurations and designs



- wide range of settings, protections, and connectivity
- great weight to performance ratio
- featuring operation with multiwinding electric motors

BMS

- management of energy storage
- protect cells and significantly extend lifespan
- wide range of settings, protections, diagnostics and communication channels



BATTERY

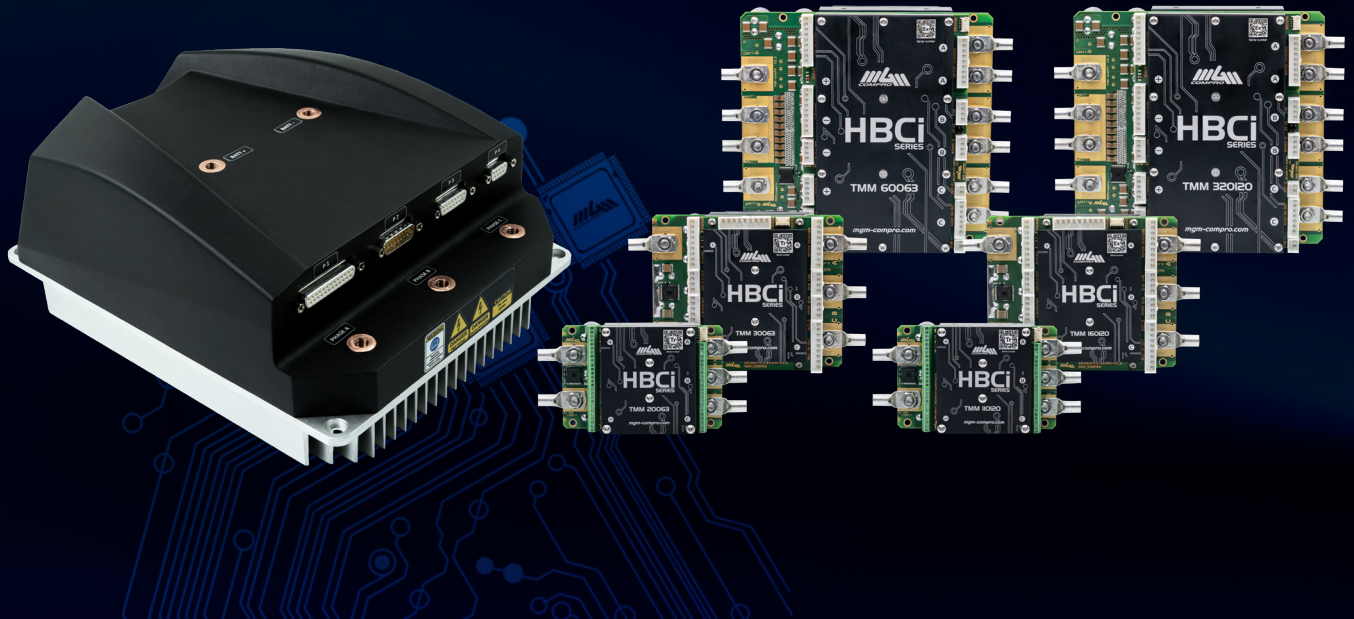
- unique approach to the complex mechanical and electrical design
- more than 25 years of experience and cooperation with top lithium cells manufactures
- tailor made battery configuration and shapes
- all lithium based types of cells (Li-Ion, Li-Pol, liFePO4, ...)
- advanced materials, redundancy, safety and protections
- unique active and passive fire extinguishing possibilities

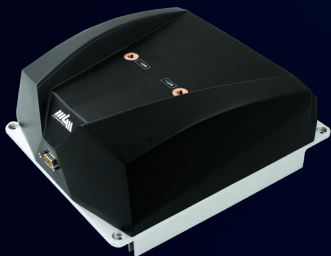


SPEED CONTROLLERS

The industrial ranges of HBCi and HSBC controllers represent state of the art technology of electromotor control. Controllers ranging from low to high power, low as well as high voltage are manufactured in many variants and designs to completely fulfill customer needs.

Together with top control management they feature numerous possibilities of settings, operation, communication, diagnostics and much more. This sets them to be an ideal solution to various industrial applications, electric vehicles and a broad spectrum of products and equipment.

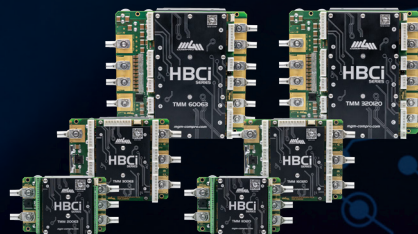




UP TO
800V, 500A, 400KW
HIGH VOLTAGE HBCi SERIES / IGBT + SiC

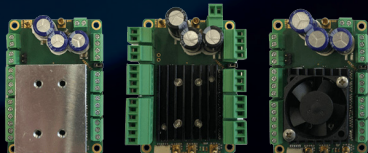


UP TO
400V
400A
100KW
HIGH VOLTAGE HBCi SERIES

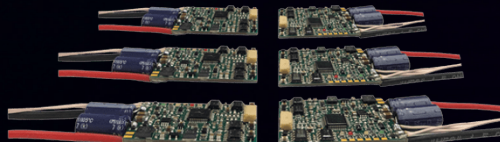


UP TO
63V/120V
500A
33KW
MEDIUM + LOW VOLTAGE HBC SERIES

UP TO
63V
50A
3KW



LOW VOLTAGE HSBC SERIES

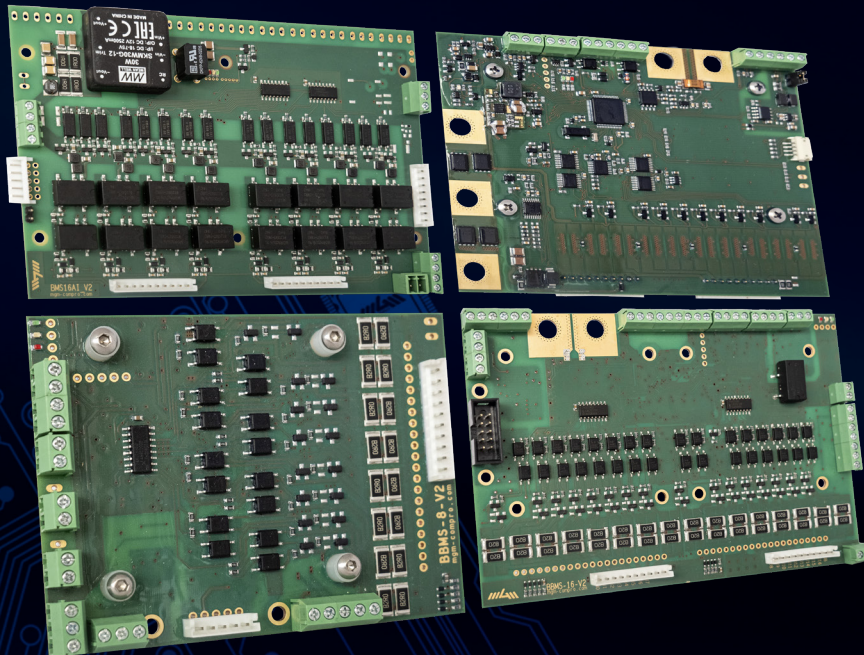


UP TO
63V
120A
6KW
LOW VOLTAGE HBC SERIES

BATTERY MANAGEMENT SYSTEMS

MGM COMPRO Battery Management Systems (BMS) bring new dimension to economic effectiveness for applications using lithium based batteries. They ensure high end management of energy storage in battery systems (during charging, as well as discharging and even with very high currents) for various industrial applications, electric

aircraft, electric vehicles (cars, boats, paramotors, etc.), solar and wind plants, intelligent houses and high capacity energy storages. They fully protect cells and significantly extend their lifespan. As our other signature products, they feature a broad range of settings, protections, safety features, diagnostics, various active as well as passive balancing methods and communication possibilities.



BATTERY PACKS

Lithium batteries are currently the best available energy storage technology and are exceptional for their ratio of dimensions to weight and capacity. They are also capable of delivering high current. High-quality care for these batteries ensure long battery lifespan. We offer individual cells and complete battery packs suitable for a vast

majority of industrial applications, from the smallest on up to those used in electric vehicles (EV), wakeboards, specialty ones used in aircraft, UAVs, UGVs, marine application, smart houses, off-grid power systems and in other systems for storing excess electricity generated by power plants.

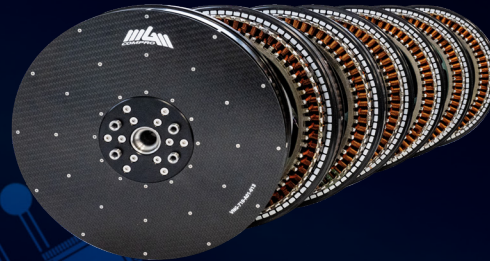


ELECTRIC MOTORS

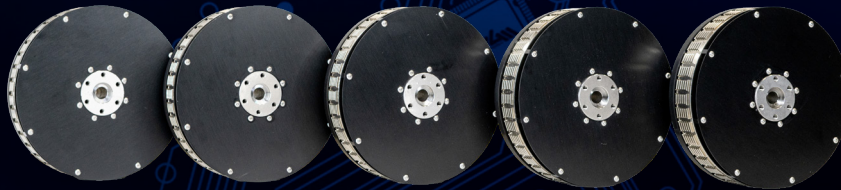
POWER RANGE FROM 10 TO 400 KW

We offer a large selection of drives for industrial applications with rated performance ranging from a few up to hundreds of kilowatts excelling at its parameters, size and weight to continuously delivered power ratio.

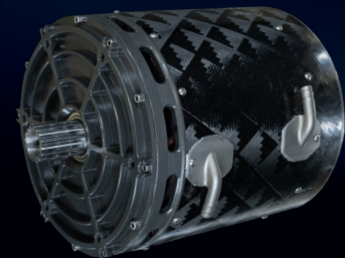
20 KW ELECTRIC MOTOR



10 KW ELECTRIC MOTORS



200 KW ELECTRIC MOTOR



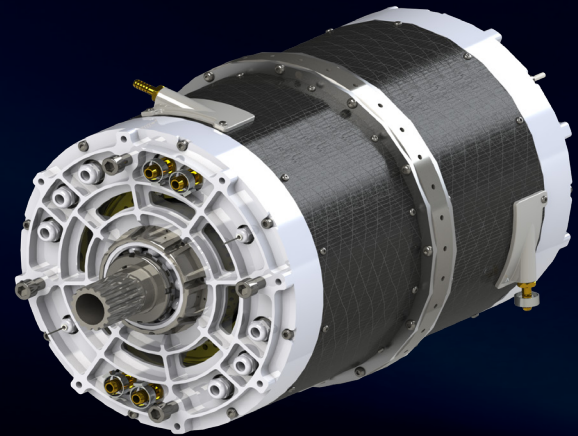
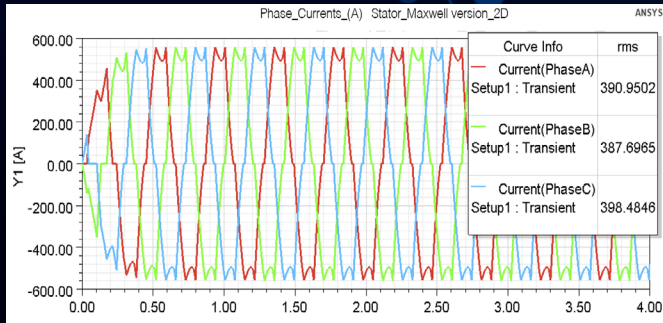
DEVELOPMENT

INTERNAL DEVELOPMENT – 400 KW PROPULSION SYSTEM

Electric Motor Design

Boundary Conditions for Electric Motor Core Design

- Required power: Up to approximately 200 kW per core (dual-core topology)
- Minimum operating voltage: 633 V
- Maximum operating voltage: 800 V
- Limiting phase currents: 600 A
- Maximum speed under load: 8000 RPM
- Number of rotor magnets: 48 pieces



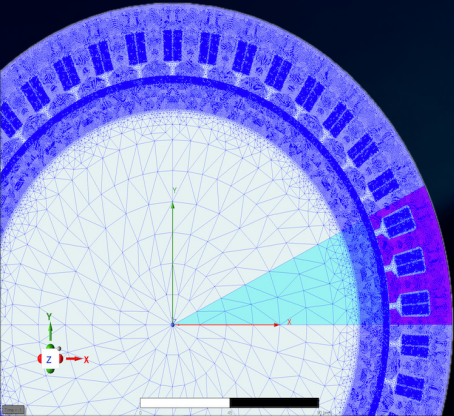
Magnetic flux density distribution (2D model)

TECHNOLOGY

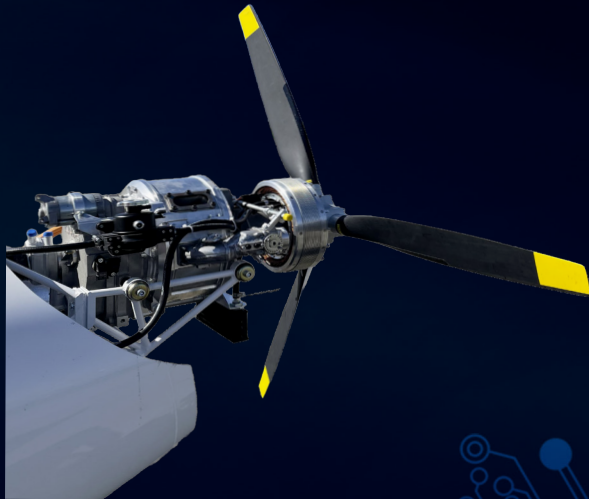
The fundamental developmental approach to innovations in electric motors involves the utilization of modern Ansys software. This is a multiphysics software that allows the integration of analysis results, thus creating a comprehensive simulation model of the electric motor.

DISTRIBUTION OF LOSSES

Based on the loss distribution, we are able to provide an iterative process for optimising electric motor efficiency.



SPECIAL PROJECTS



HYBRID PROPULSION UNIT

The innovative combination of a piston engine and a modern electric BLDC motor for ultralight aircraft pushes the boundaries of efficiency, ecology and safety in the aviation industry. The hybrid unit is characterized by reduced fuel consumption and emissions, as well as low operating costs. Comprising a powerful and lightweight birotary engine, a modern BLDC electric motor, and a complex battery system with integrated air cooling, it represents a new era of aviation, combining performance and sustainability.

250 KW BLDC PROPULSION UNIT

The electric propulsion with a working voltage of 800V and a power of around 250kW opens a wide range of applications, not only in the aviation industry. The unit brings innovations in the form of an electronic speed controller based on SiC technology for an operation voltage up to 800 V and an electric BLDC inrunner motor with a speed up to 8000 RPM, equipped with a newly developed EDF fan geometry. This technology provides an innovative solution with increased efficiency for the urban e-mobility.

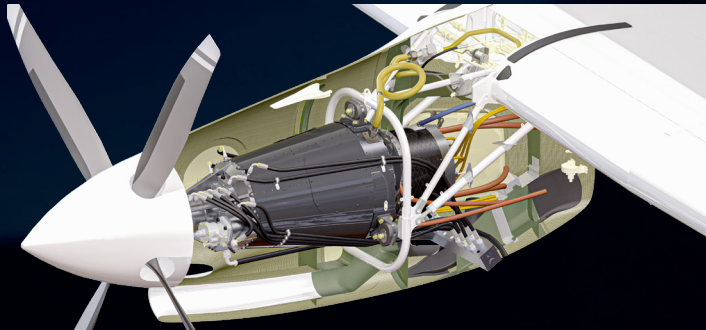


ELECTRIC PROPULSION UNIT – 400 KW PT6A ENGINE DIRECT REPLACEMENT

We are bringing complex innovation to the aerospace industry with our new CS-23 general aviation propulsion system. Our drive unit is based on a complex design of a new electric motor with two core topology, supported by new generation of the electric speed controllers with IGBT technology using operation voltage up to 800V. Together with developed reduction gearbox create drive unit with power about 400kW. The revolutionary system includes modular battery packs design with integrated BMS and unique structure solution for maximalization of the air-cooling possibilities. With all integrated logic features system delivering a reliable and efficient power source for the aircraft with higher level of the safety.

ELECTRIC MOTOR

- Motor cooling system based on dielectric fluid
- Independent primary and secondary cooling system
- Dual-core electromagnetic field topology
- Hall sensor redundancy



GEARBOX SYSTEM

- Based on planetary gear technology
- Integrated hydraulic system for constant speed propellers
- Direct connection solution for governors (propeller adjustment system)
- Direct connection solution for overspeed (propeller safety)
- Advanced electronic system for governor signal operation

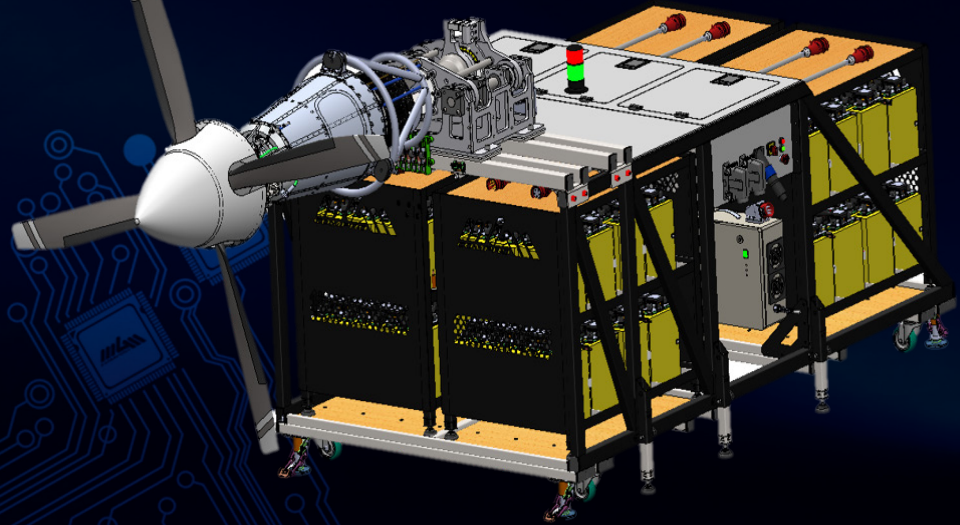


VALIDATION PROCEDURE

TESTSTAND

Validation of the EPU components based on the customer's requirements

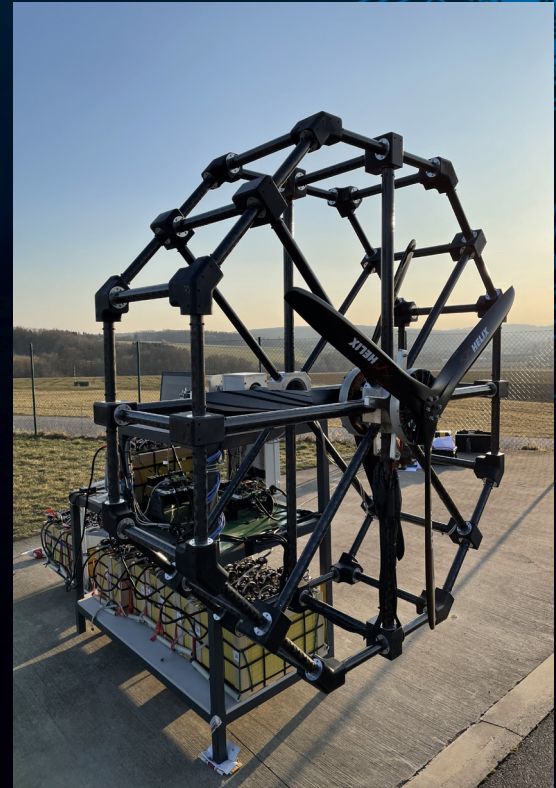
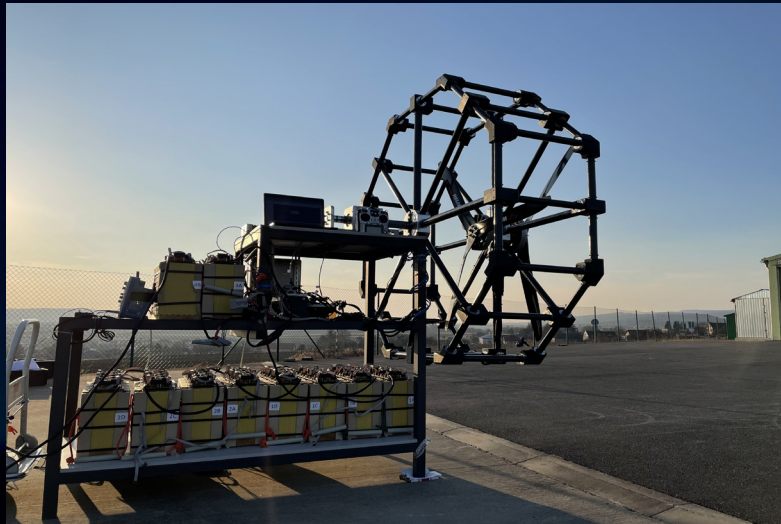
- Thermal Behavior Of Motor And ESC In Whole Power Range
- Coolable Power Results Of The EPU
- Thrust And Torque Measuring By Tensiometer
- Overall And Particular Efficiency.
- Required power: up to 400 kW
- Maximal axial force load: up to 10 000 N



COAXIAL STAND

Custom test stand for coaxial contra-rotating propellers

- Brand new solution of COAX setup.
- Mechanical design includes composite and additive technologies.
- Innovative design for various distances of the propeller (aerodynamic optimization).



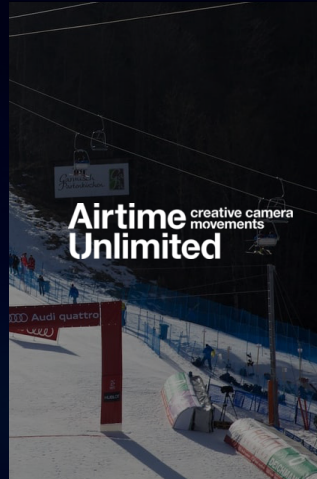
REFERENCES

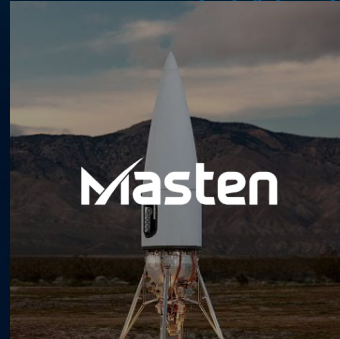
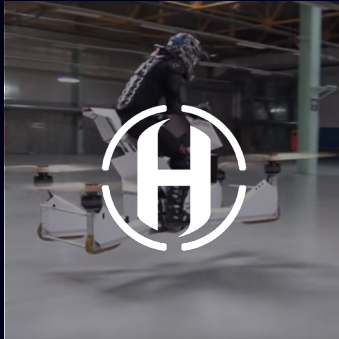
For almost 30 years MGM COMPRO has been helping to realize visions of our partners, bringing original technical solutions into the everyday life.













MARTIN DVORSKY
MANAGING DIRECTOR

Head of trade policy and business
development of the company.



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