



PORTRAIT

MOLABO produces the world's first electric drives that can deliver 80 kW at safe-to-touch voltages of 48 V. The Intelligent Stator Cage Drive - ISCAD for short - can be easily installed by everyone due to its compact and lightweight design and the safe-to-touch voltage.

The idea was born at the University of the Federal Armed Forces in Munich, at the Chair of Electric Drives and Actuators of Professor Dieter Gerling. There, Adrian Patzak, Florian Bachheibl and Prof. Dieter Gerling, the founders of MOLABO, set up two working prototypes using ISCAD technology. After successfully demonstrating that the technology works, they founded MOLABO GmbH in 2016.

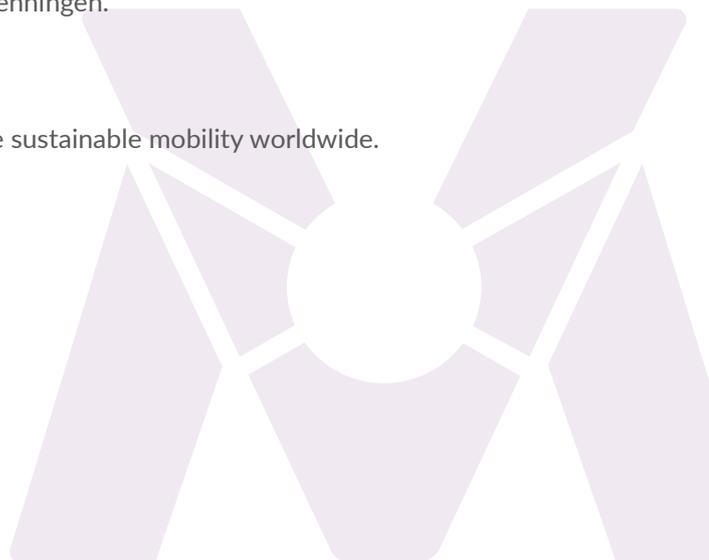
MOLABO has already received numerous awards for their innovation, including the German Mobility Award 2018 from the German Federal Ministry of Transport, the Create the Future Design Award 2018 from the renowned Tech Briefs and the Handelsblatt Energy Award 2018. They also convinced industry partner ZF, the second largest automotive supplier worldwide, at the ZF Electric Innovation Challenge 2018. MOLABO was self-financed since its foundation in 2016 through various projects with well-known suppliers and OEMs. At the end of 2019, a seven-digit Series A financing round was successfully closed. Investor is the family-owned company Hechinger, based in Villingen-Schwenningen.

MISSION

We provide safe-to-touch low-voltage e-solutions to enable sustainable mobility worldwide.

VISION

Shaping the transition to simple e-mobility





ISCAD V50



With a safe-to-touch voltage of 48 V, the drive produces a peak power of 80 kW and a nominal power of 50 kW and is optimally suited for use in motor boats and sailing yachts. Thanks to a specially reinforced end shield, the motor can be mounted both vertically and horizontally. It is therefore suitable for the electrification of sail drives, outboard boat motors, shaft drives and stern drives. ISCAD V50 can be easily installed by everyone due to its compact and lightweight design and the safe-to-touch voltage. With a length of only 265.5 mm, a diameter of 254 mm and a weight of 45 kg, the drive with integrated controller is lighter and more compact than comparable models.

In addition to ISCAD V50 with its integrated controller, MOLABO offers additional components to make a conversion or installation with ISCAD V50 as easy as possible. This includes, for example, the drive with peripherals, throttle, display, cooling system and battery. With the modular and customizable drive solution you get everything you need for an efficient and reliable propulsion of your electric boat.

Rated Power	50 kW
Max. Power	80 kW
Voltage	48 V
Motor Speed	4.350 rpm
Mass	45 kg
Dimensions	Ø 254 mm, L: 265,5 mm
Motor Type	PM-SynRM

*Data incl. motor and controller



TECHNOLOGY

MOLABO's 48 Volt concept is different from conventional electric drives in many aspects. So far, all drive systems need a high battery voltage of up to 800 V to deliver high performance. With the innovative ISCAD technology high performance can now be achieved for the first time at safe-to-touch voltages of 48 Volt.



The technology is based on a new design of the stator in electric motor: instead of complicated windings, solid bars are used which form a kind of cage. Due to the stator cage design with the bars, ISCAD is more robust and fail-safe than conventional electric drives, since operation is still possible even if one or more phases fail. ISCAD combines motor and controller in one integrated unit. This compact solution is easy to install and saves installation space. The ISCAD technology is a highly parallel system from the battery to the motor. Currents are divided among many phases by the stator cage, which makes the high traction performance at 48 V possible.

A low voltage system has many advantages, because contact is possible without risk. Contact with a high-voltage system, on the other hand, can be life-threatening if appropriate safety precautions are not taken. This also entails risks in the event of an accident, if rescue teams cannot approach the electric vehicle without risk. Low-voltage systems can be integrated and maintained without special high-voltage training. ISCAD thus stands for much simpler and more robust electric drives than the state of the art. This safe and easy to use technology enables large-scale electric mobility even in emerging markets with lower technical standards.