VEM

ELECTRIC DRIVES

FOR EVERY DEMAND

Permanent Magnet Synchronous Motors for Electric Propulsion 120 kW - 9 MW

#HIGHEFFICIENT
#ULTRACOMPACT
#RELIABLE

Our WHY for green shipping: Decarbonisation, reduction of greenhouse gas emissions, sulphurs and NOx.

Permanent magnet synchronous motors

VESSEL TYPES

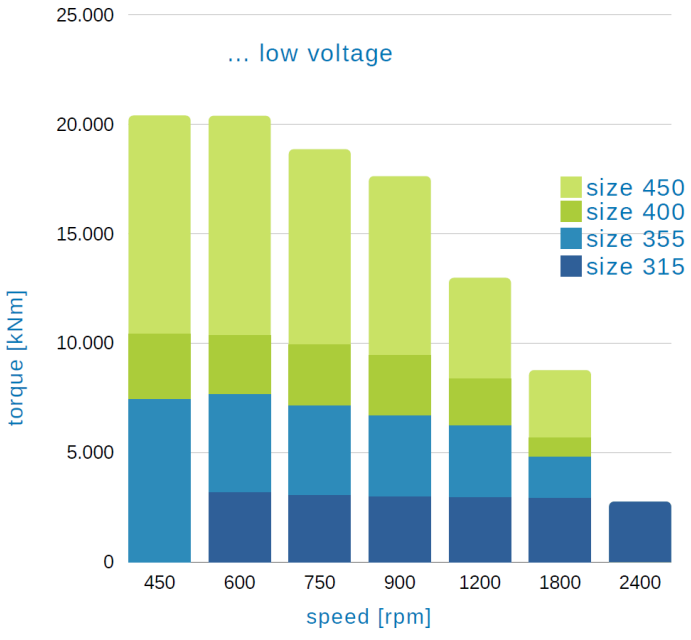
- offshore, crane
- research vessel
- TUG boats
- ferries
- (mega) yachts
- expedition cruise liners

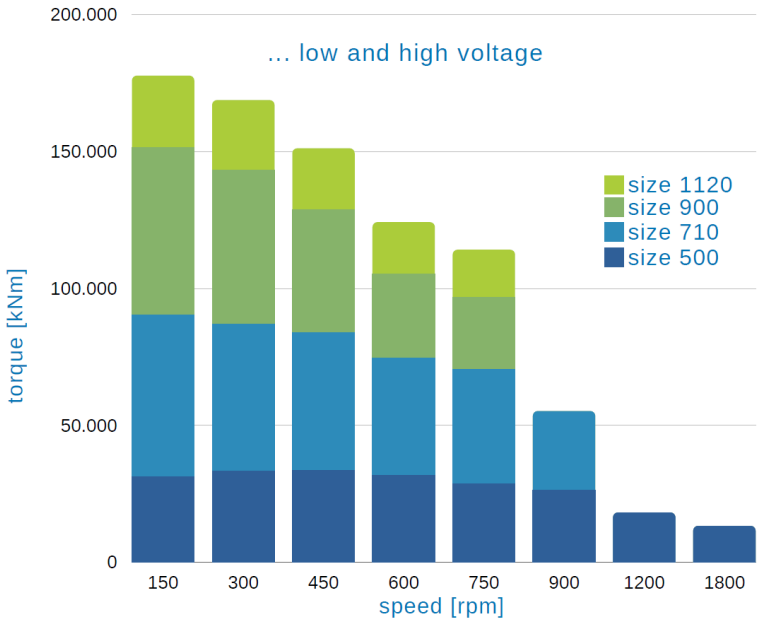
THRUSTER TYPES

- azimuth thruster
- retractable thruster
- bow and stern thruster
- swing up thruster

E-PROPULSION

- main propulsion
- hybrid drives





Decarbonisation goals set by the IMO causes a new course for maritime propulsion systems. The reduction of greenhouse gas emissions by 40% until 2030 from the level of 2008 is one of the major targets.

The improvement of technical levels, such as EEXI (Energy Efficiency Existing Ship Index) and operational level, such as CII (Carbon Intensity Index) will help customers to align with these rules.

Your benefits

- highest efficiency
- beneficial installation space
- ultra compact motors
- flexibility in design
- improved power density
- robust and reliable technology
- based on more than 130 years of experience
- short lead times

Flexibility in Design

Due to our ultra compact design, PM machines fit into installation spaces where conventional machines will never fit to the existing footprint. This opens beneficial ways for designers and OEM to find new vessel concepts.

Frequency Converter Technology

All VEM PM machines are suitable for VFD operation (variable frequency drive). Form wound windings withstand all levels in accordance with IVIC D (ultra harsh conditions). Random winding aligns with all levels of converter operation based on IVIC B. To lower harmonics and the impact to rotor temperatures a dU/dT-filter is mandatory for all low voltage machines.

Our technology

- embedded magnets
- short circuit proof
- guarenteed stability of magnets
- random winding (except of HV)
- insulation/ temperature rise F/F (other on request)
- approved marine technology based on standard components
- water-jacket-cooled

Efficiency Ahead

PM machines provide typically a 2 to 4% higher efficiency at full load and even up to 10% at partial load, compared to induction machines.

Reliability

In VEM you can trust. More than 130 years of experience in building electrical machines and high level of engineering and quality targets ensure a long term operation. We offer our customers a special guarentee for PM machines.

Short Circuit Proof

Short circuits in the main switch board (MSB) or in the VFD may cause an electro magnetic counter field that could damage or de-magnetize the rotor of PM machines. VEM machines withstand these short circuit events under every condition.

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