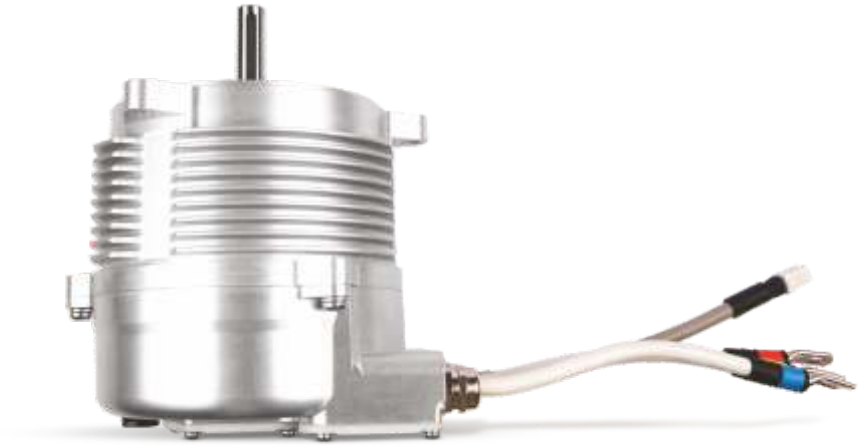
EV SOLUTIONS

varroc
EXCELLENCE

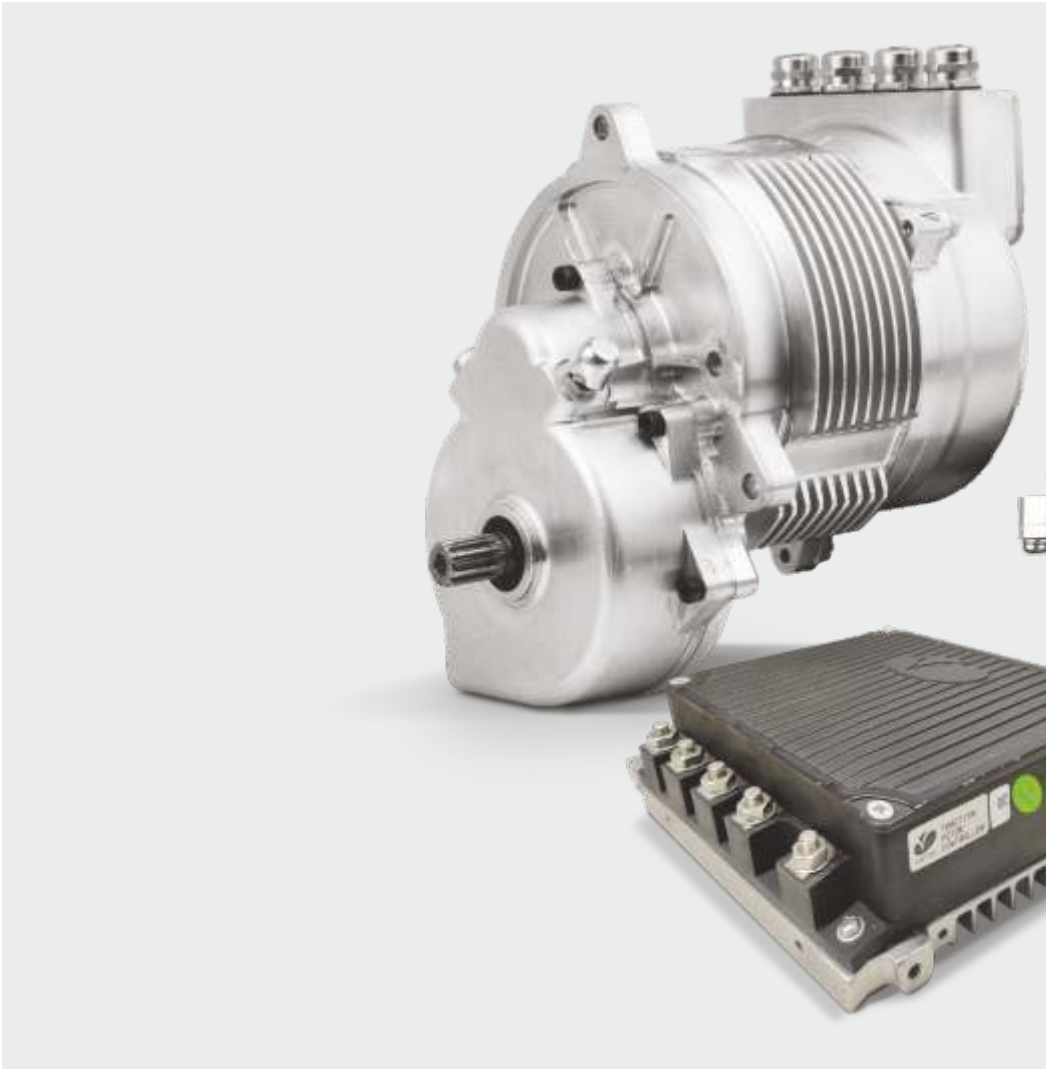
COMPACT DESIGN. IMPACTFUL PERFORMANCE.

A power-packed range of
Traction Motor & Controller Unit



PERFORM@CHANGE

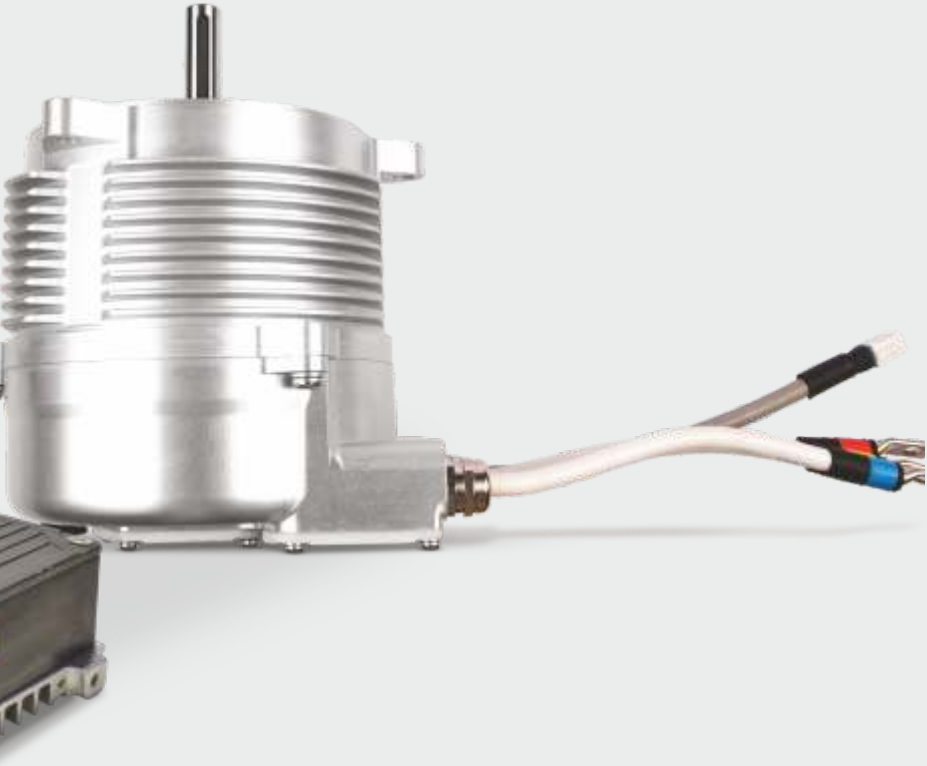
DYNAMIC SOLUTIONS **FOR AN ELECTRIC DRIVE**



INTRODUCING OUR COMPREHENSIVE POWERTRAIN SOLUTIONS.

Varroc offers a range of traction motors and controller units that are designed, developed, and manufactured in India.

Focusing on lightweight technologies and efficiency in terms of battery consumption, our motors are compact in size and powerful in capacity, thus enabling electric vehicles to achieve optimum performance.



TRACTION MOTOR (6.4KW) & CONTROLLER UNIT

DRIVEN BY EFFICIENCY

One solution for entire powertrain

Customization and Design Architecture options available and the range is scalable

In-house design, development, and manufacturing

FEATURES

PMSM Motor type

CAN based communication

Regenerative braking for range boosting

Suitable solution for 48 V nominal systems

All power connectors on one side providing savings in the wiring harness

Motor controller compatible with analog and digital position sensors

Cruise Control

IP 67 compatible

Control Algo: FOC based control algorithm

TECHNICAL SPECIFICATIONS

MOTOR AND CONTROLLER

Nominal Operating Voltage: 48V

Wide Operating voltage range: 36V to 60V

Operating Ambient Temperature: -10 to 60 deg C

Storage Temperature: -40°C to 85°C

Maximum Humidity: 95% RH

Peak Power: 6.7 kW for 3 minutes

Peak Torque: 26Nm for 1.5 minutes

High Motor Peak Efficiency: > 94%

Controller Peak Efficiency: > 98%

System Peak Efficiency: > 93%

Maximum Speed: 7500 RPM

Maximum Current Consumption (Ignition ON): 185A DC at 48V

Maximum Air Pressure: 106 kPA

GEAR BOX

Gearbox Ratio: 3:1

Type of gear: Helical - reduced backlash and noise

Transmission efficiency: 96%-98%

Input: 26NM and 9000 RPM

TRACTION MOTOR (10KW) & CONTROLLER UNIT

BUILT FOR OPTIMUM PERFORMANCE

One solution for entire powertrain

Customization and Design Architecture options available and the range is scalable

In-house design, development, and manufacturing

FEATURES

PMSM Motor type

CAN based communication

Regenerative braking for range boosting

Suitable solution for 48 V nominal systems

All power connectors on one side providing

Saving in the wiring harness

Motor controller compatible with analog and digital position sensors

IP 67 Compatible

Control Algo: FOC based control algorithm

CAN based communication

Regenerative braking for range boosting

TECHNICAL SPECIFICATIONS

Peak Power: 10 kW

Peak Torque: 45 Nm

Motor Peak Efficiency: >93%

Controller Peak Efficiency: >98%

System Peak Efficiency: >91%

Maximum Speed: 6500 RPM

Nominal operating voltage: 48 V

Wide operating voltage range: 36 V to 60 V

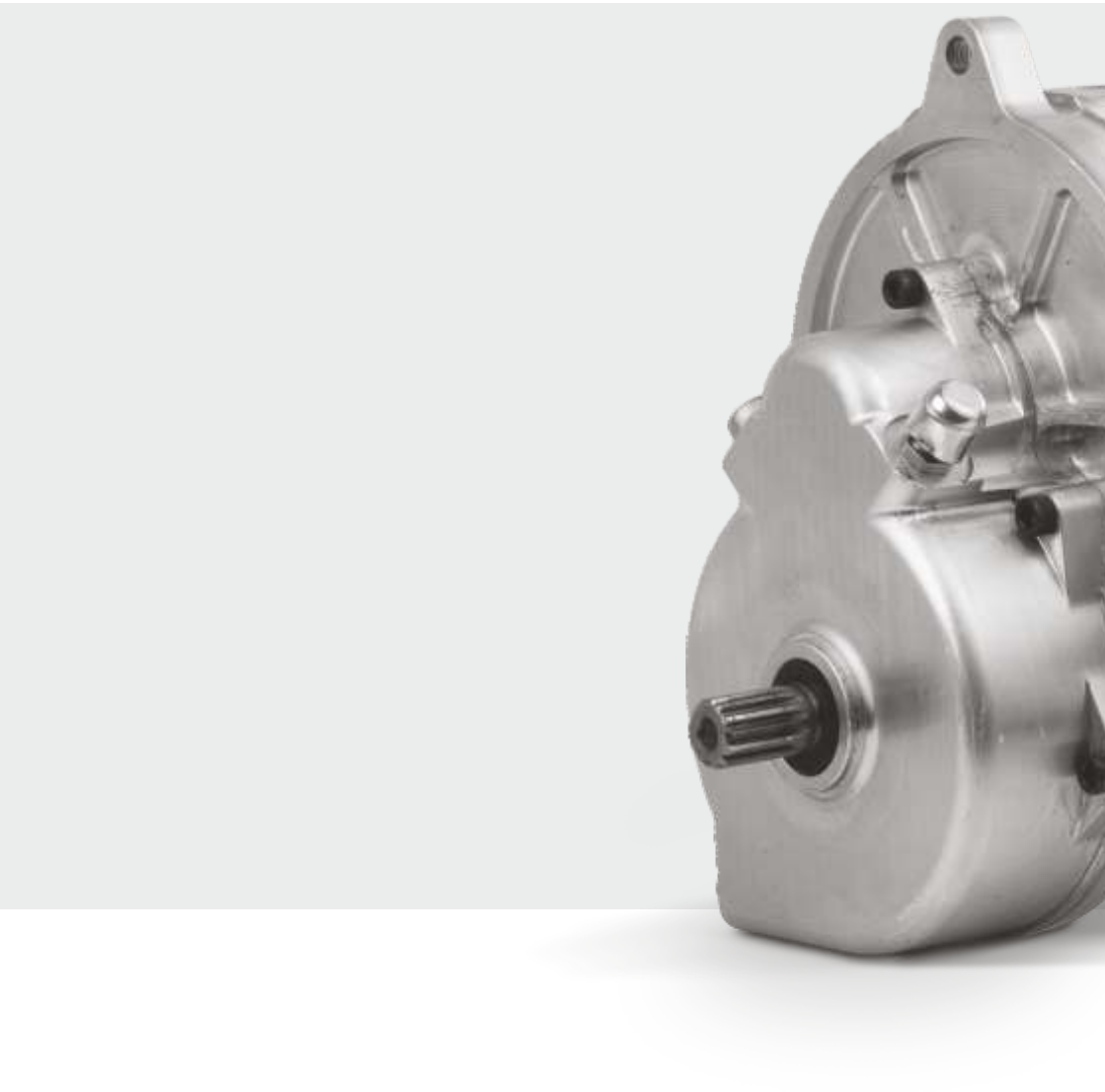
Operating ambient temperature: –25°C to 60°C (for Motor)

Operating ambient temperature: –25°C to 65°C (for TM Controller Unit)

Storage temperature: -40°C to 85°C

Maximum humidity: 95% RH

TRACTION MOTOR WITH GEARBOX



SYNCHRONOUS RELUCTANCE MOTOR

AN INNOVATIVE & SUSTAINABLE SOLUTION

Most present-day drive solutions available for traction applications use Rare-Earth (RE) permanent magnets to generate torque. However, a global shortage of this commodity has long been challenging automotive manufacturers.

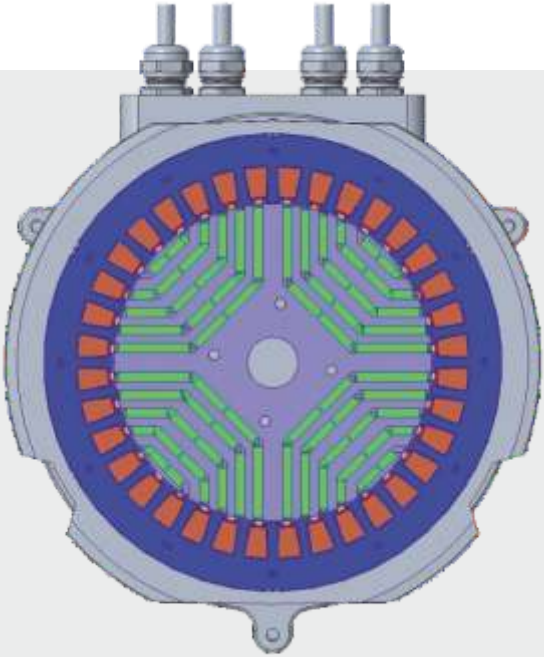
Varroc has risen up to the challenge with sustainable alternatives that can not only replace these magnets but also improve vehicle performance. Starting with Ferrite-assisted SynRM (Synchronous Reluctance Motor), a technology that uses reluctance variation (saliency) along with the air-gap due to rotor geometry to generate torque. The ferrite magnets are used in the rotor slots to increase the flux, which contributes to the torque delivering capacity of the SynRM. A gamechanger in traction mechanics, this motor does not require any special sensor and has been proven to work well with conventional FOC control.

Concept product for presentation purpose only.

Rare Earth Magnet free solution

In-house design and development

High efficiency



FEATURES

Simple and rugged construction

Compatible with conventional Field Oriented Control (FOC) drive

TECHNICAL SPECIFICATIONS

Nominal voltage: 48 V

Continuous power: 3 kW

Peak power: 5.4 kW

Peak Torque: 30 Nm

Max. speed: 6500 RPM

Max. efficiency: >94%

CAPABILITIES

IP 67 compatible

In-house design, development, testing, validation, and manufacturing

FOC-Based Control Algorithm

CAN Based Communication

Regenerative Braking for Range Boosting

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EXCELLENCE

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