



AS PP  
Advanced Technologies for Future

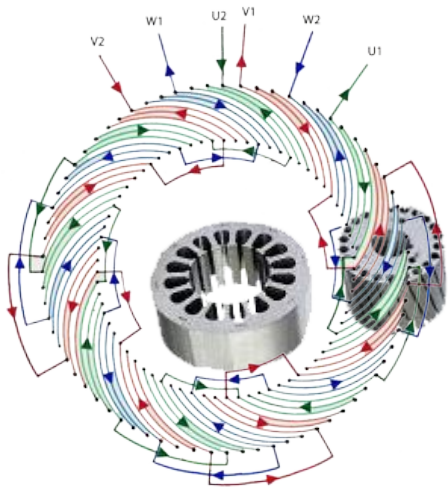
Cost-Effective and Efficient Induction Motors with  
Combined Windings and Propulsion Engines

# Innovative Character of the Underlying Technology

- The world's first induction wheel-hub motor
- Electric motors without permanent magnets
- Direct power transmission without gearbox
- High efficiency up to 97%
- Up to 50 % increased range
- Individual designs for each application

All this is based on the use of the latest winding technology :

Combined Star-Delta Windings





# Advantages at a glance

- 30 % lower production costs
- No use of rare earths
- Robust and low on maintenance
- High torque over the whole speed
- No rolling and braking resistance
- **Unbeatable worldwide energy saving**



# Application areas

## 1. Energy Production

- Wind energy
- Water energy

## 3. Industrial enterprises

- Machines production
- Machine tools
- Electrical hand tools
- Pumps
- Explosion-proof motors

## 2. Drive technology

- E-Cars
- E-Bikes
- E-Boats
- E-Aircraft
- E-Locomotives





# Our experience

- Many years of experience in development
- Developments for public and private companies
- More than a hundred registered patents
- During the last five years developed and implemented dozens of the latest generation of electric motors and generators



# Improving the performance of electric vehicles



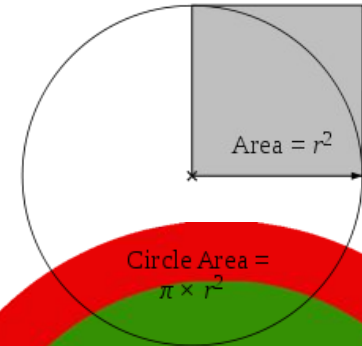
- Only the change in the windings of the electric motors has improved the following parameters:
- Torque 50 % more
- Range 25 % more
- Max. Speed 10% more
- Acceleration 30 % better



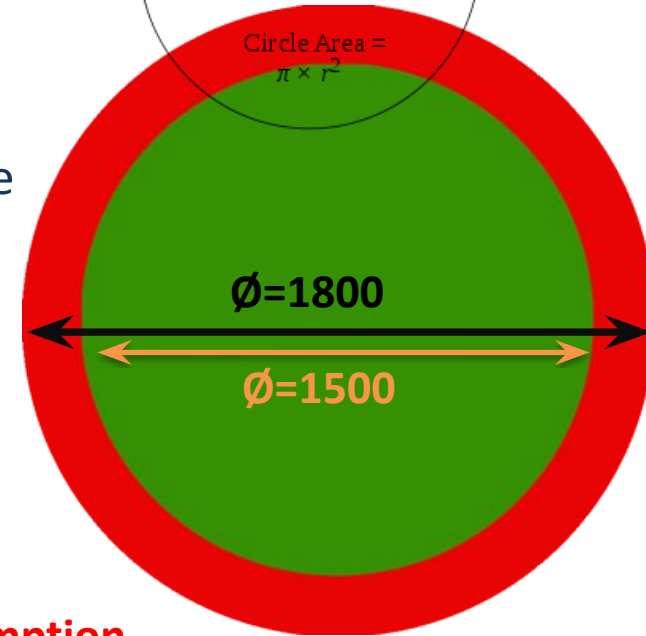
**Average power consumption smaller as 9 kWh per 100 km  
E-Car with 85 kWh can drive 800-900 km**

# Lower production costs as a result of less material consumption

## Project Azipod



Our calculations show the ability to reduce the motor size from diameter 1800 mm to 1500 -1400 mm.



Ø 1800 - Circle Area=2544690 mm<sup>2</sup>

Ø 1500 - Circle Area=1767146 mm<sup>2</sup> - **43%**

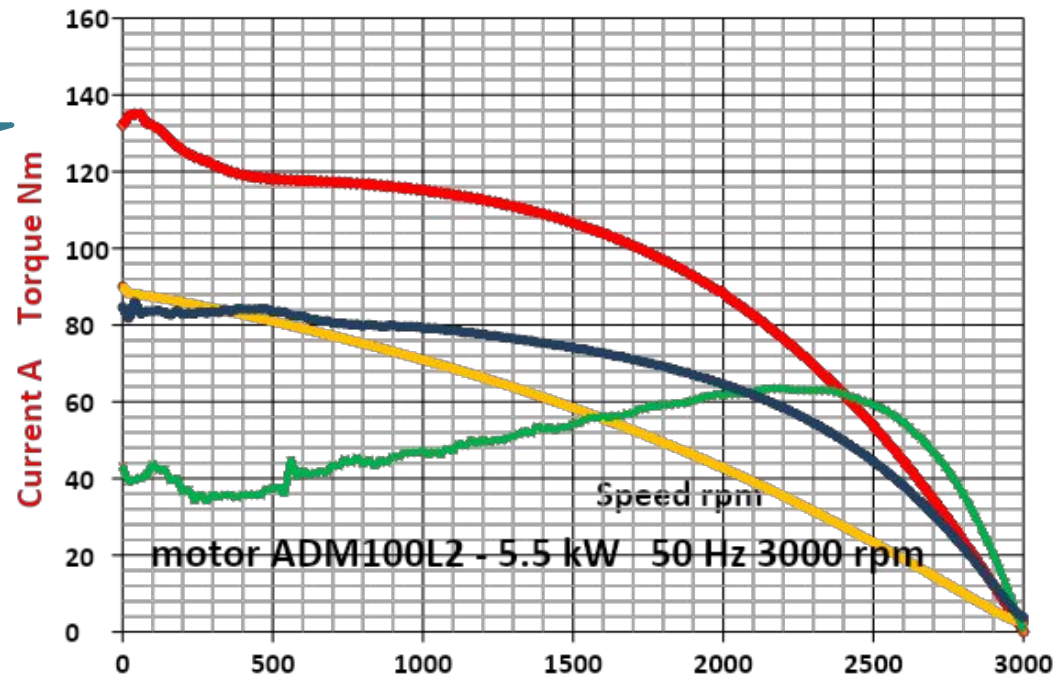
Ø 1400 - Circle Area= 1539380 mm<sup>2</sup> - **65% less material consumption**

# Now is about a new class of electrical machines

**More TORQUE  
Less CURRENT**

To bring these motors to the world market we are looking for a strong strategic partner

- ◆ Torque Nm modified motor
- Current A modified motor
- ✱ Torque Nm original motor
- Current A original motor



Original	P, kW	rpm	eff %	$M_{max}/M_n$	Weight, kg
ADM100L2	5,5	2850	88	2,4	35,0






# Benefits and cost reduction

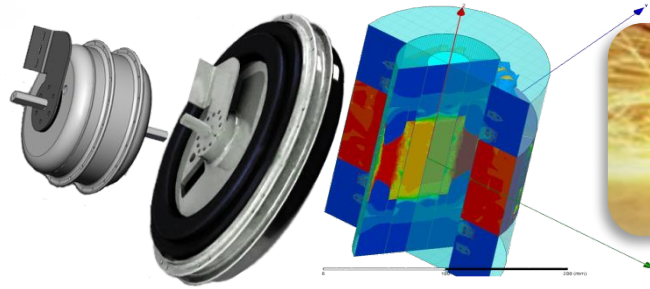
## Benefits for investors

- Huge market for electric motors
- Short payback period
- Perspective of extending the cooperation to other areas

## Benefits for producers

- Up to 30 % lower production costs as a result of less material consumption
  - Increased energy efficiency
  - Possible introduction the of the new technology without changing the production lines
- 

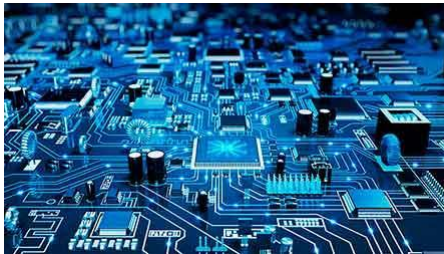
# Our fields of activity and further opportunities for cooperation



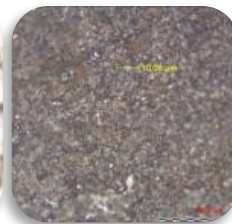
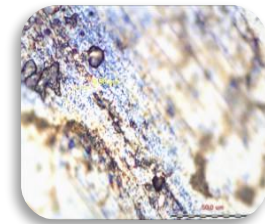
**Electric Motors with Combined Windings**



**Hydrogen and Plasma Technology**



**Electronics & Lighting**



**Diamond Coatings**





# New Energy Strategy

Development of high-efficiency electric motors  
of the new generation for industry

Development of high-efficiency electric motors  
of the new generation for E-Car

Development of high-efficiency electric motors  
wind and water energy



Development of effective batteries





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Thank you for your attention!