

驱动未来

Power your future

WOLONG
Power your future

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➤ Wolong Holding Group - Overview

THREE MAJOR INDUSTRIES



MANUFACTURING

Wolong Electric Group Co., Ltd.



FINANCE & INVESTMENT

Wolong Capital



REAL ESTATE

Wolong Real Estate Group

COMPANY SIZE



6,17 BUSD

Group revenue



39

Global
manufacturing
bases



5,5 BUSD

Group total assets



18.000

Employees

LISTED COMPANIES

Wolong Electric Group
SH600580

Wolong REAL ESTATE
SH600173

Brook Crompton Holdings Ltd.
Singapore

> Wolong Group

FOUNDER & PRESIDENT of the WOLONG GROUP

In 1984, Mr. Chen Jiancheng, an outstanding representative of the first generation of entrepreneurs in China, founded Shangyu Multi Speed Micro Motor Factory, the predecessor of Wolong, at the foot of Wolong mountain in Shaoxing. Through years of hard work and determination, Mr. Chen Jiancheng is committed to develop Wolong into a leading technological innovation enterprise in the world.

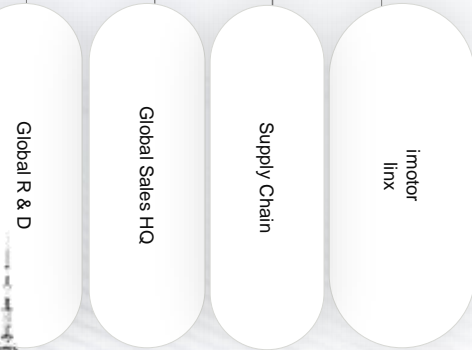


Wolong Electric Group - Organizational Structure

Wolong Holding Group

Wolong Electric Group

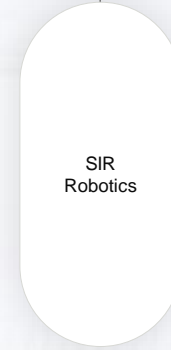
Platform Companies



Product Groups and Business Units



Industrial Automation



Energy Management

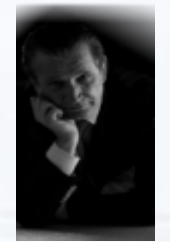
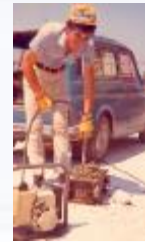


Wolong Electric Group - Global Brands

Wolong Family of Brands



Wolong Family of Brands



Leading provider of energy efficient electric motors

Joined Wolong in 2011
UK – Brook Crompton



1878

Explosion-proof motor provider and leader

Joined Wolong in 2011
Germany - Schorch



1882

Top manufacturer in offshore and nuclear power motor

Joined Wolong in 2011
UK - Laurence Scott



1883

GE trademark 10 years right of use

Joined Wolong in 2018
US - GEIM



1889

Best known coal mining motor manufacturer

Joined Wolong in 2011
UK - Morley



1897

The 3rd largest motor manufacturer in Europe

Joined Wolong in 2011
Austria - ATB



1919

International leader in industrial vibration technology

Joined Wolong in 2015
Italy - OLI



1961

China's largest Explosion-proof motor manufacturer

Joined Wolong in 2015
China - CNE



1970

World's leading robotics solution provider

Joined Wolong in 2014
Italy - SIR



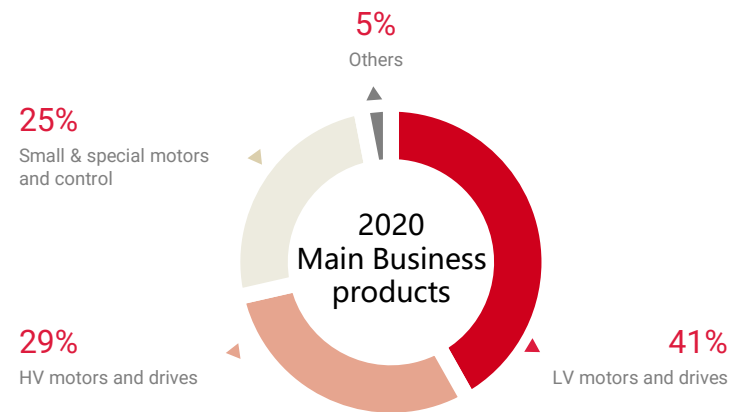
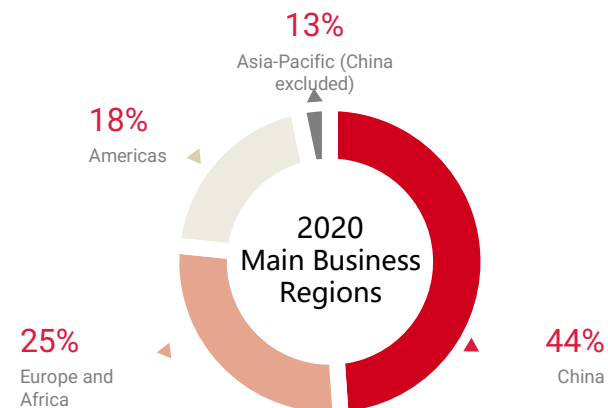
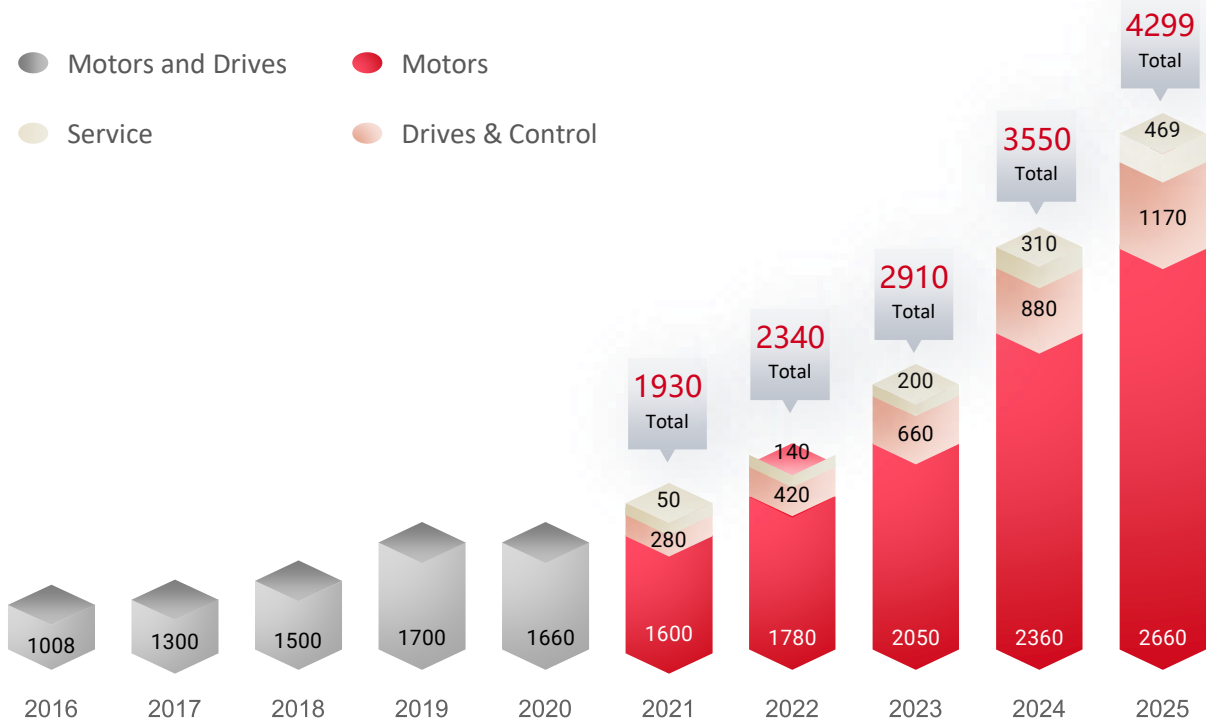
1984

Wolong Electric Group - Development History



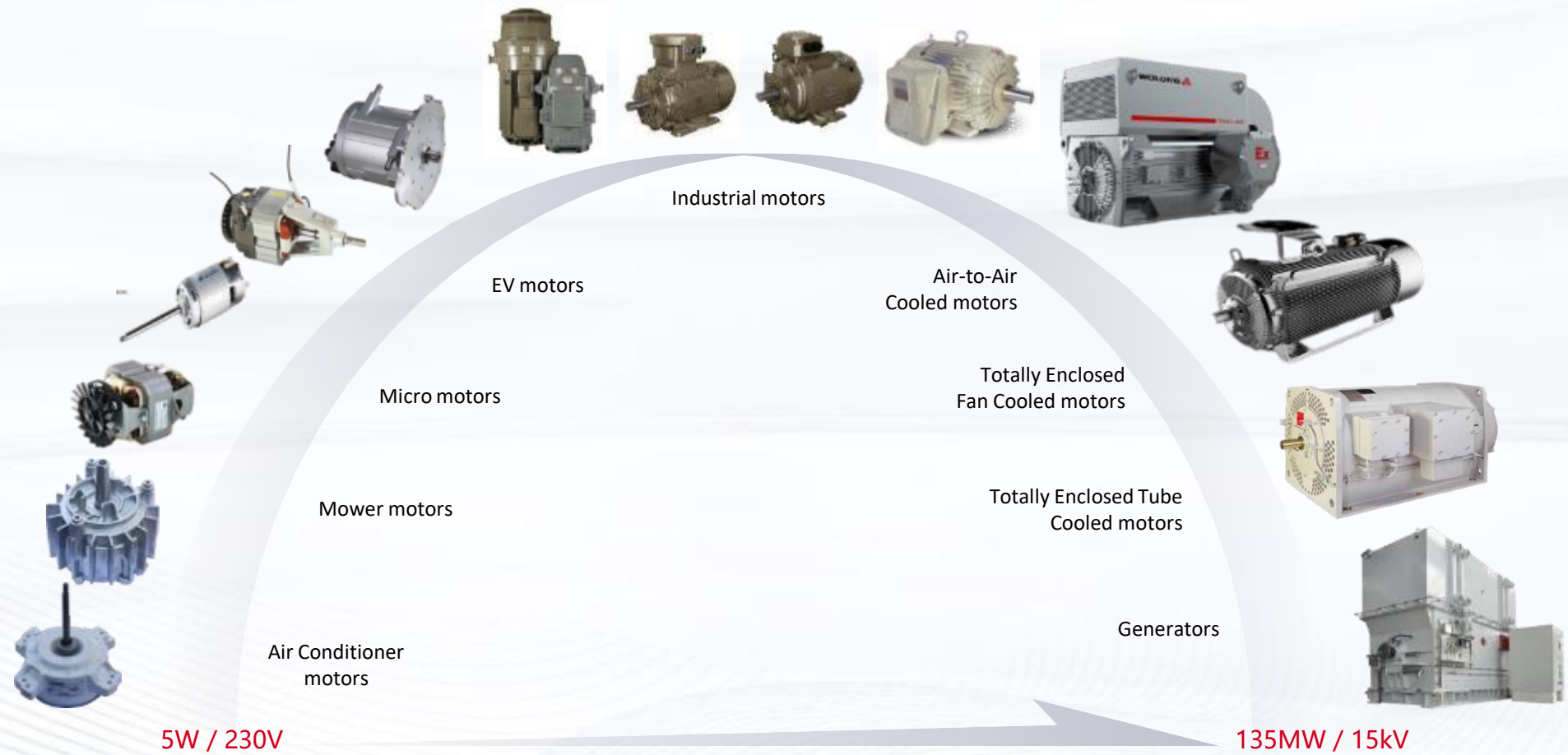
Wolong Electric Group - Global Revenue development & forecast

Sales revenue of Wolong Electric Group during the 13th Five-Year and 14th Five-Year periods (Unit: MUSD)



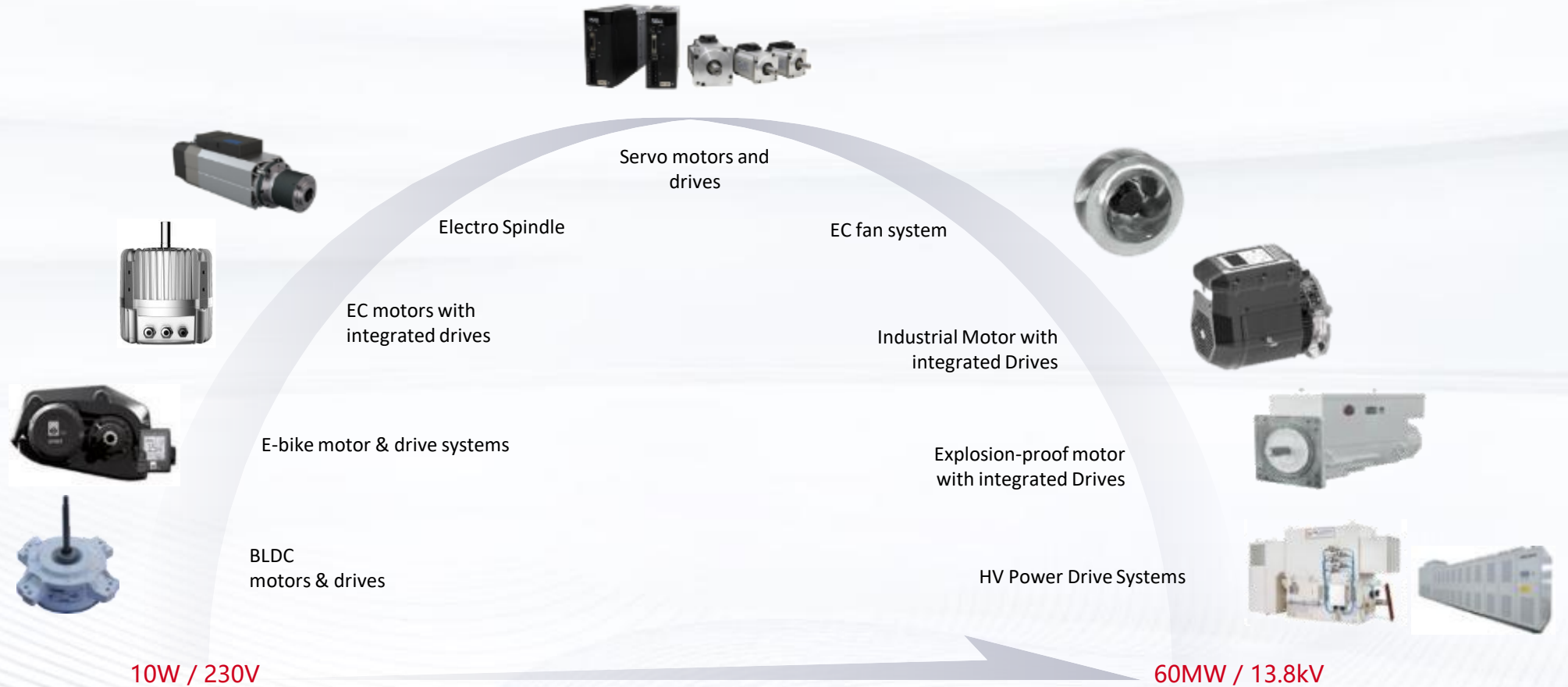
Wolong Electric Group - Main Products

Motors and Generators



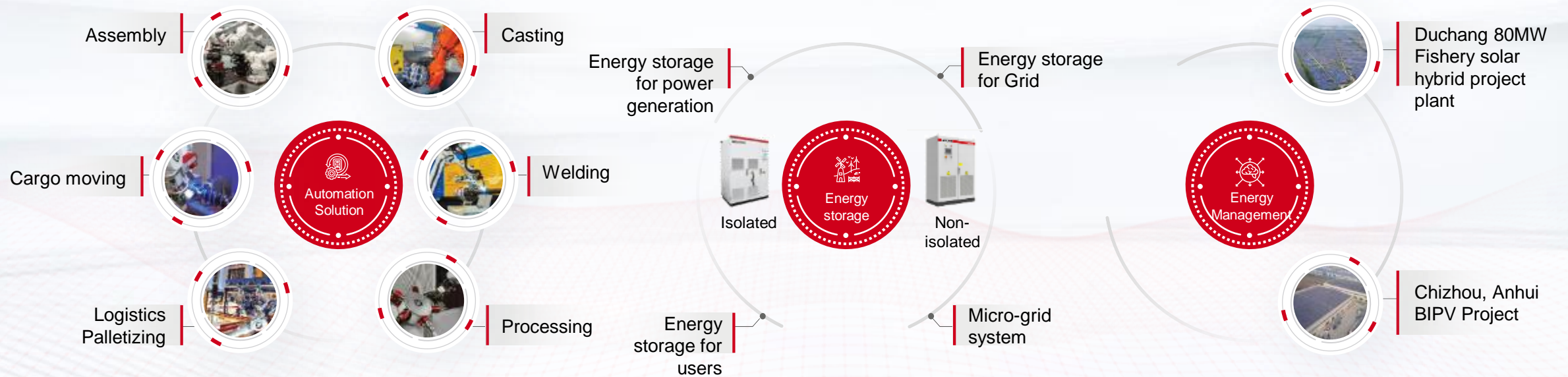
➤ Wolong Electric Group - Main Products

Motors and integrated Power Drives System Solutions



Wolong Electric Group - Main Products and Solutions

Automation Solutions and Energy Management



➤ Wolong Electric Group – Full Lifetime Service

Wolong **i-Motor** Smart Services, based on iMotorLinx Industrial Internet Platform



➤ Wolong Electric Group - Main Industries and Applications



Oil & gas



Mining



Metallurgy



Petrochemical



Marine & ports



Paper & pulp



New energy



Rail & transportation



New energy vehicles



Automation equipment



Pharmaceuticals



Data center



Infrastructure



Water treatment



HVAC & cooling



Smart home



Food & beverage



Modern agriculture

Wolong Electric Group - Global Footprint

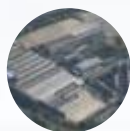
3 Manufacturing bases, 39 factories

- Asia (China, Vietnam)
- Europe (UK, Germany, Italy, Poland, Serbia)
- America (Mexico)



Tarnov, Poland

Special motors - industrial use



Norwich, UK

Project, DC, permanent magnet motors



Mönchengladbach Sales HQ
Germany

Explosion-proof, special motors and drives (LV & MV)

4 R&D Centers

- China
- America
- Japan
- India



Nanyang, Henan

Nanyang Plant



Shanghai Sales HQs,

Shanghai RD

HA, EV, industrial, vibrating motor.. etc.



Haiphong, Vietnam

FHP/IHP motor

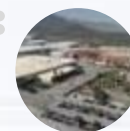
1 Global Sales HQ and 4 Regional Sales HQs

- Shanghai, China (Global Sales Headquarter)
- Beijing, China (North Region)
- Haiphong, Vietnam (APAC)
- Mönchengladbach, Germany (EMEA)
- Houston, U.S. (Americas)

Houston RD
& Sales HQ.

Mexico

Canada



Monterrey, Mexico

Industrial motors

Brazil

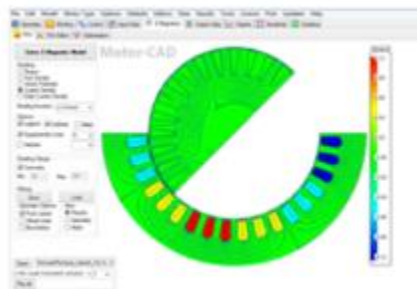
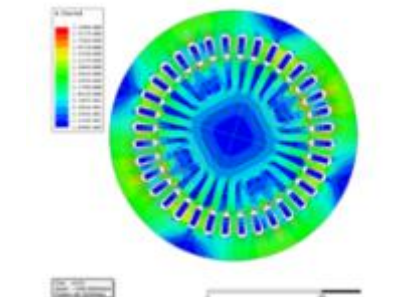
- 📍 R&D Center
- 🏭 Manufacturing Plant
- 🌐 GSH HQs
- ▲ Global Region HQ & BCH HQs
- ▲ Sales and Service Network

➤ Leading Technology - Advanced R&D System

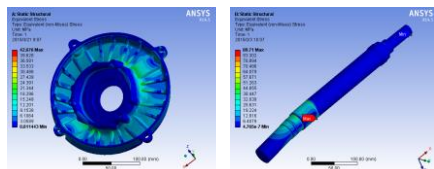
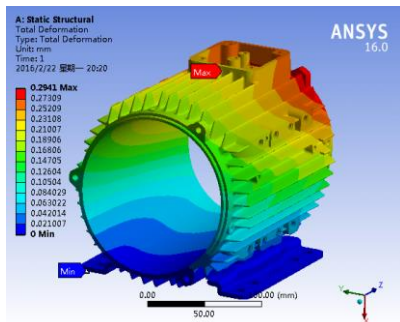
Advanced design technology

Computer simulation platform and 3D printing --- Motors and drives design

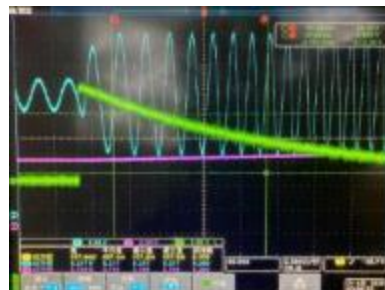
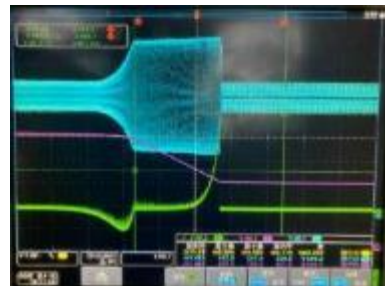
Motor finite element model magnetic density and induction electric density simulation calculation



Stress analysis of motor structural parts



High voltage & high speed
Permanent magnet motors & drives design



3D printing impeller



➤ Leading Technology - Advanced R&D System

Research and development on new materials

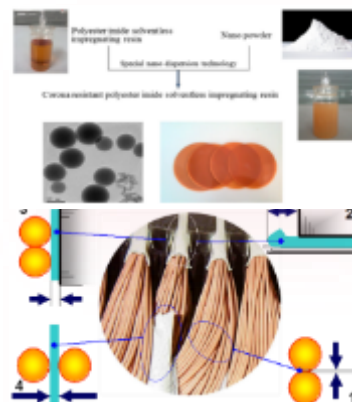
Key platform of new materials research by MIIT - Demonstration platform for special motors materials production and application

New permanent magnet material



- No need of external excitation after magnetization
- Improve motor efficiency
- Improve motor power density
- Reduce motor frame size

Nanomaterial and insulation system



- Reduce motor winding insulation layer thickness
- Improve motor corona resistance
- Improve motor winding uptime
- Applicable for VSD conditions

High-temperature superconducting material



- Improve motor efficiency
- Improve motor power density
- Reduce motor frame size
- Reduce motor weight

Silicon carbide material



- Drive power semiconductor device
- High power density
- High efficiency
- High output frequency

➤ Leading Technology - Advanced R&D System

Research and development on new technologies

New winding technology



Centralized winding



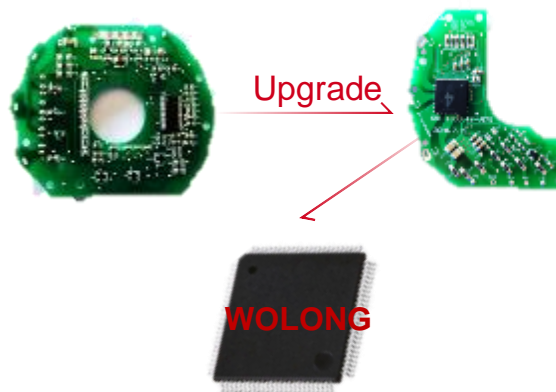
Distributed winding



Hair-pin winding

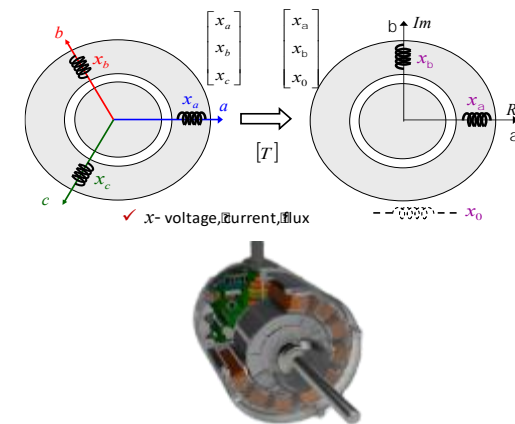
- Improve motor efficiency
- Improve motor power density
- Reduce motor frame size

Wolong chip



- Enhance electronic component integration
- Reduce motor noise and vibration
- Improve motor efficiency
- Reduce dependence on foreign chips
- Lower cost

Direct flux control algorithm



- Three core patents (worldwide)
- Precise control
- Optimal control over the full speed range
- Maximize motor torque

> Leading Technology – Our Test-Centers

Shangyu Test-Center

Testing of EV motors, small and medium-sized motors, servo motors, electric & electronic products, etc.

Nanyang Test-Center

Testing of explosion-proof motors, explosion-proof appliances, explosion-proof lamps, intrinsic safety instruments, industrial HV & LV motors, marine motors, military and nuclear motors and other products

Shanghai Test-Center

Testing of electric & electronic products

Wuhan, Anshan and Foreign Test-Center

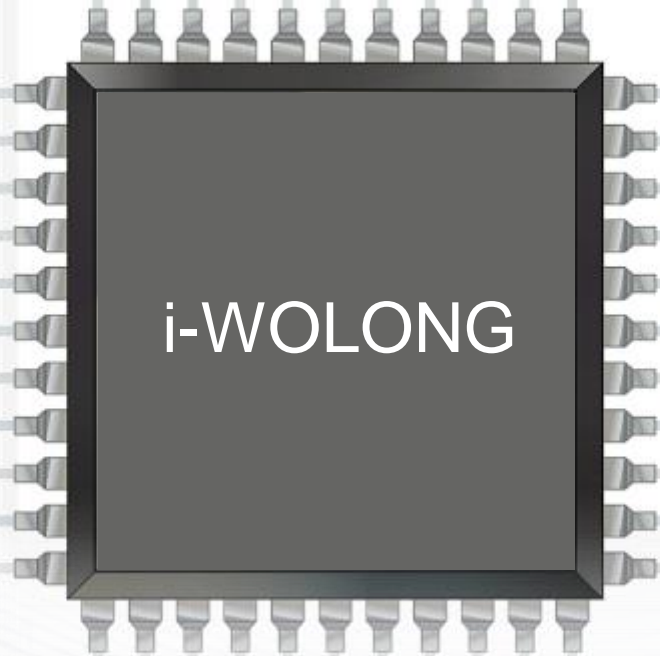
Testing of Marine motor products, electric & electronic products



Recognized as
independent
Third-party
Test-Center

> Change - Digitalization

Product digitalization, management digitalization, factory digitalization



Product digitalization



Factory digitalization



Management digitalization

Being digital is a new way to survive in the modern society based on information technology.

-- "Being Digital" by Nicholas Negroponte

➤ Transformation – Company Digitalization



Management digitalization

Wolong continuously build and optimize a series of system management platforms, including ERP, PLM, SRM, MES, CRM and Global Master Data governance platform, in accordance with the digital management development strategy of

"One Global IT Network and One Global Sales & Marketing Network".



Factory digitalization and automation

In order to build a world-class manufacturing plant, Wolong has comprehensively started the construction of digital and intelligent plants, planning to raise the digitalization and intelligence level to **over 80%** in its major plants worldwide platform **within 3 years**.



> Transformation – Product Digitalization



Product digitalization

- ① New materials, new technology upgrade to match the special drives, forming a drive and control integrated or drive and control separated motor Power Drive System solution
- ② Build a dedicated industrial IoT platform **i-WOLONG**, and provide the full life-cycle of motor service solution



Advantages of motor & drives digitalization

- ① Intelligent control
- ② Energy saving
- ③ Long service life
- ④ Low noise
- ⑤ Low vibration
- ⑥.....

Digitalization of motor products is equivalent to adding an intelligent brain to motor products!



➤ Transformation – Product Digitalization

Wolong's digital products and Power Drive System Solutions

Motor & Drive integrated



BLDC motors



EC motors with integrated drives

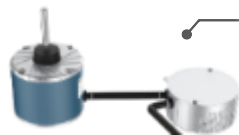


Permanent Magnet Industrial motors with integrated drives



ExD HV & LV motors with integrated drives

Motor & Drive separated



EC motors and separate drives



M series servo motors + WSD series servo drives



WEPM series permanent magnet Industrial motors + WD100 drives



Large-sized HV motors + HV drives system solutions

Digital IoT products



Small motor data monitoring device



Big motor data monitoring device



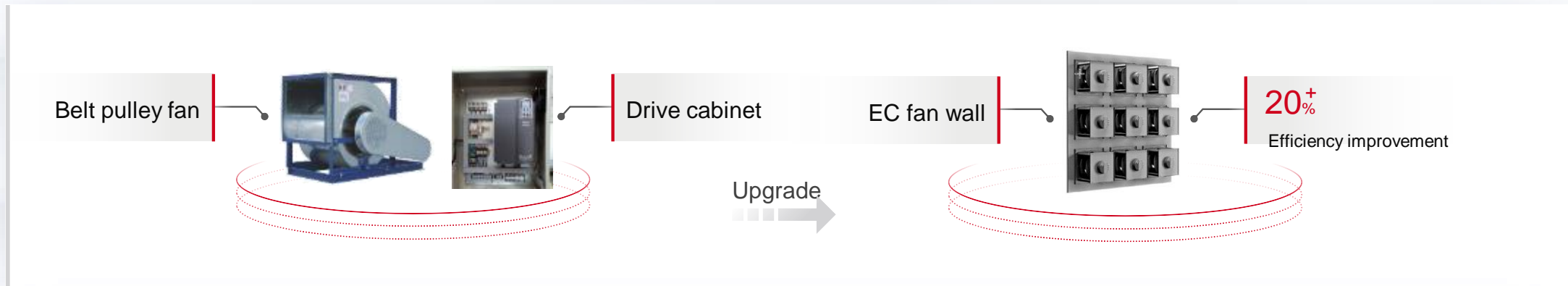
Smart IoT edge gateway for communication



Artificial intelligence

> Transformation - Low Carbon

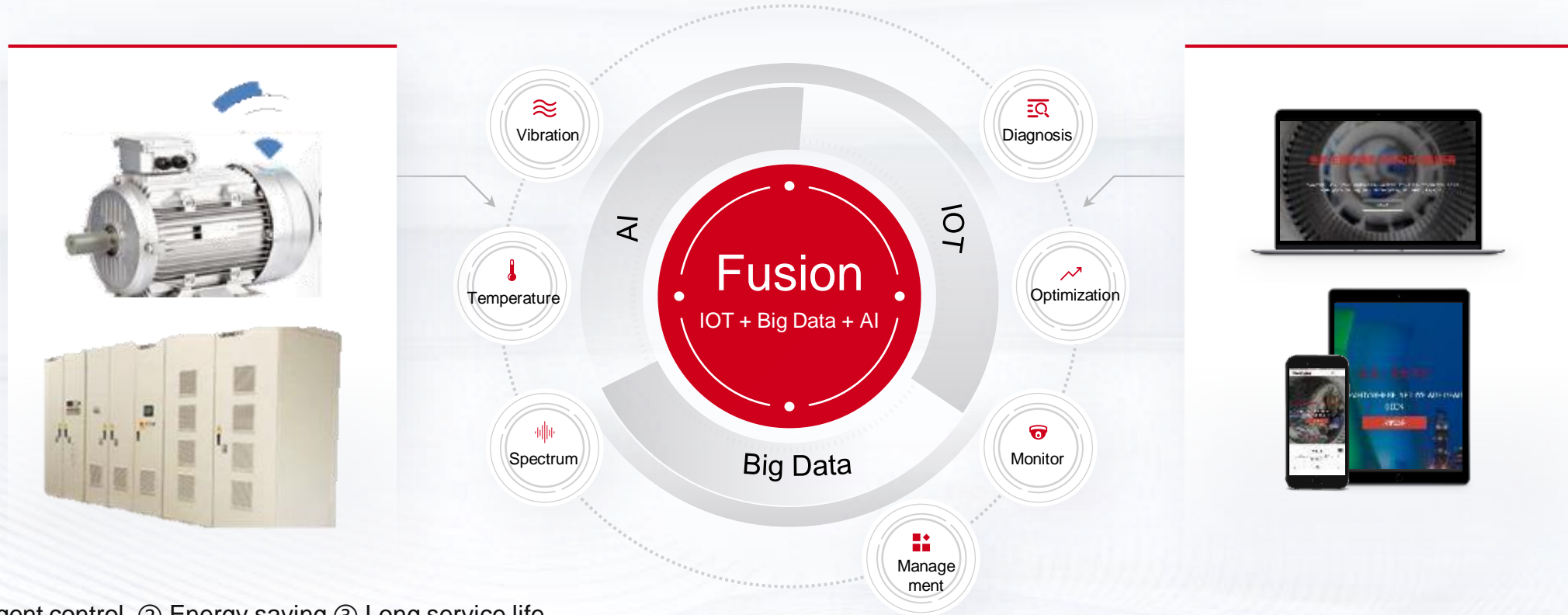
Case: AHU uses EC centrifugal fan wall



	Drive/controller efficiency	Motor efficiency	Belt efficiency	Belt protective cover efficiency	Belt pulley/bearing seat efficiency	Impeller efficiency	Fan system efficiency
Belt driven centrifugal fan	97%	85~91%	92~95%	97%	92~96%	60~68%	41~53%
EC backwards curved centrifugal fan	98%	85~91%	X	X	X	75~80%	62~71%

> Transformation - Digitalization

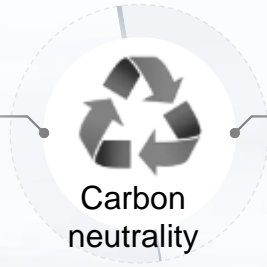
i-WOLONG motor smart system for full life-cycle service/management platform



- ① Intelligent control
- ② Energy saving
- ③ Long service life
- ④ Low noise
- ⑤ Low vibration

➤ Transformation – towards carbon neutrality

Emission



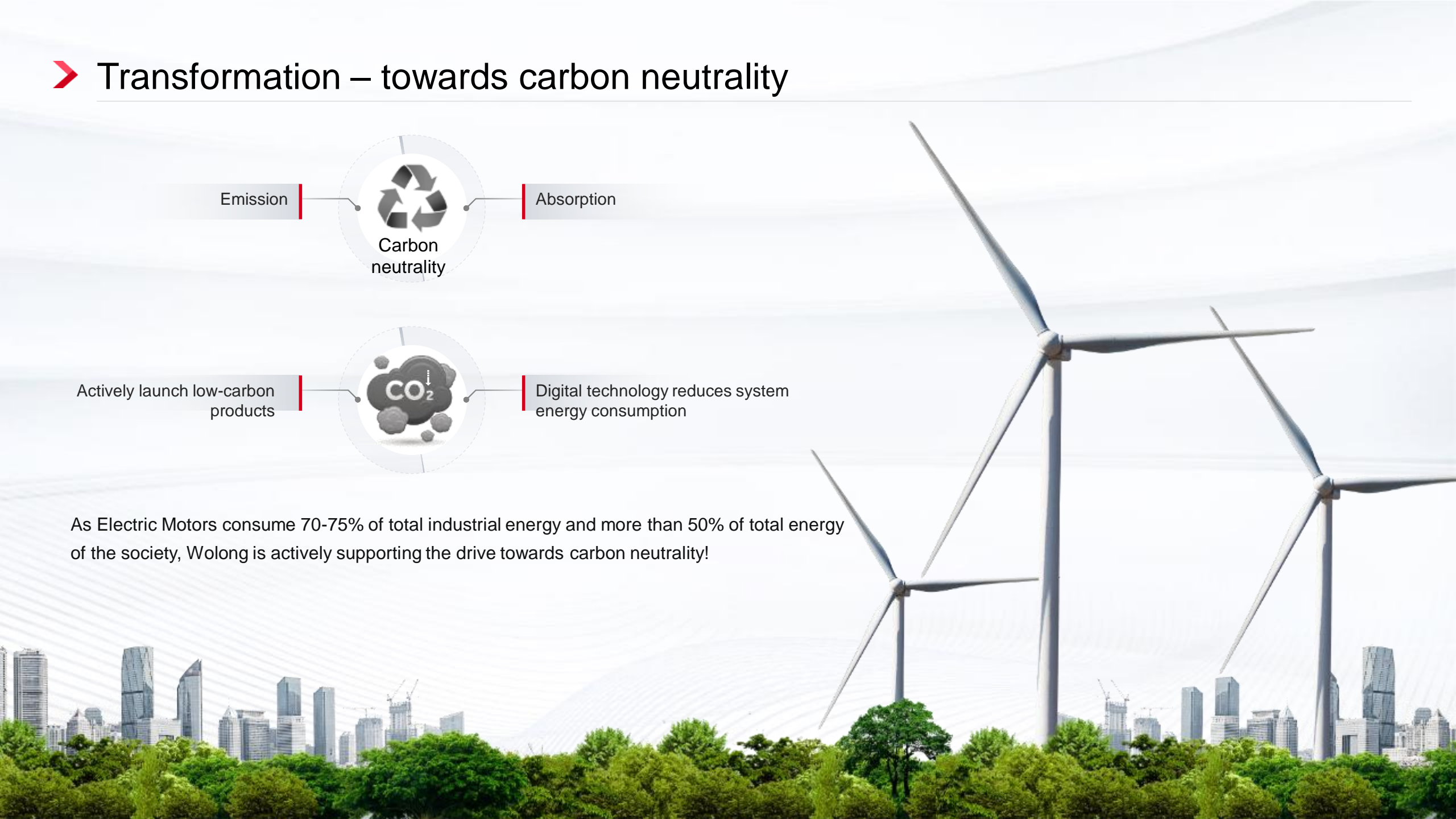
Absorption

Actively launch low-carbon products



Digital technology reduces system energy consumption

As Electric Motors consume 70-75% of total industrial energy and more than 50% of total energy of the society, Wolong is actively supporting the drive towards carbon neutrality!



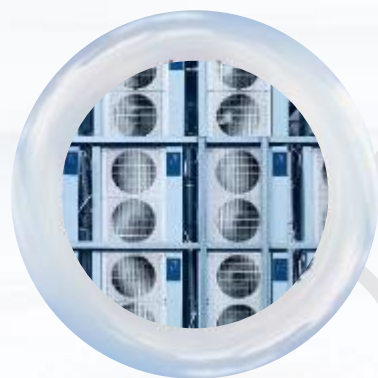
➤ Transformation – Low Carbon

Low-carbon **cities**

Urban central air conditioning energy saving solutions with high efficiency motors



Low-carbon cities



Central Air Conditioning systems



Refrigerated centrifugal compressor - refrigerant motors

Fixed-speed motors

Variable speed Induction motors

Variable speed Permanent-Magnet motors



Variable speed Permanent-Magnet motors + magnetic bearings



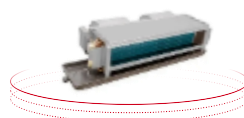
Air Handling Unit (AHU) - motors & drives & fans

Normal induction motors IE2/IE3

High efficient induction motors IE3/IE4

Variable speed Permanent-Magnet motors IE4/IE5

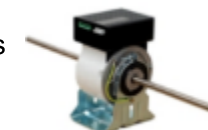
EC centrifugal fan wall



Fan Coil Unit (FCU) – motors & drives

Normal induction motors

BLDC motors



Cooling tower - motors & drives & fans

Normal induction motors IE2/IE3

High efficient induction motors IE3/IE4

Variable speed Permanent-Magnet motors IE4/IE5

EC axial-flow fan wall



➤ Transformation - Low Carbon

Low-carbon **cities**

Energy saving solution for Municipal Water Services



General motor solution for pumps



Normal induction motors
IE2/IE3



High efficient induction motors
IE3/IE4



Permanent Magnet motors
IE4/IE5

Motor solutions for water supply pumps

Induction motors



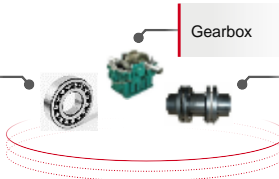
Drive



Motor with integrated drives

Motor solution for Roots blowers

Ball bearing



Coupling

Special-purpose drive



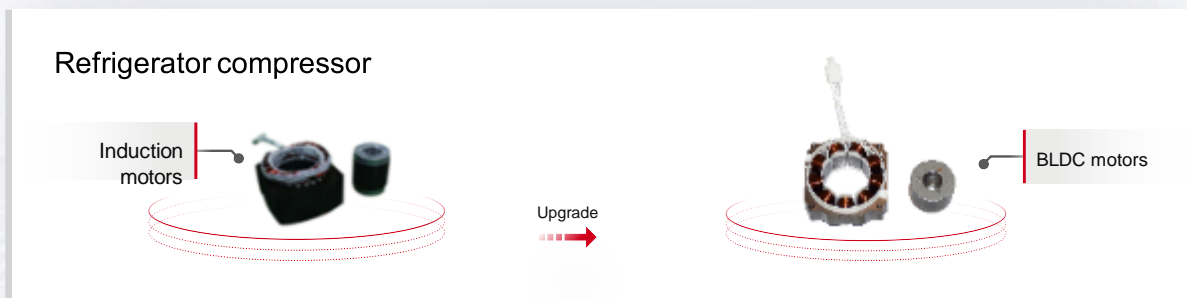
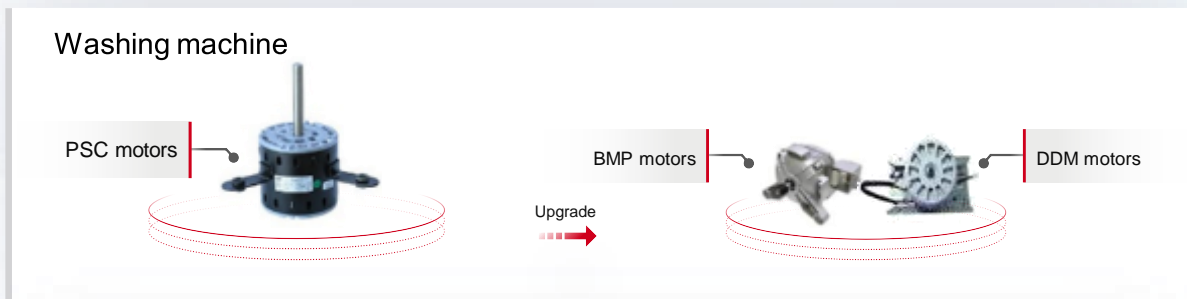
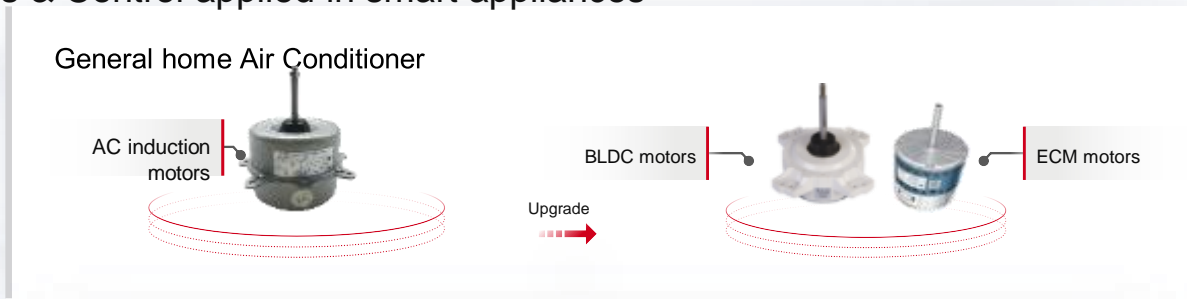
Permanent magnet rotor and stator

Magnetic bearing

> Transformation - Low Carbon

Low carbon **life**

BLDC, EC and Permanent Magnet motors with integrated Drives & Control applied in smart appliances



> Transformation - Low Carbon

Low carbon **transportation**

Provide efficient electric Power Drive System Solutions for future new energy efficient transport and travel



> Transformation - Low Carbon

Low carbon **energy**

Promote energy transformation to help the world reach "carbon neutrality" target as soon as possible



> Corporate Culture

— Mission

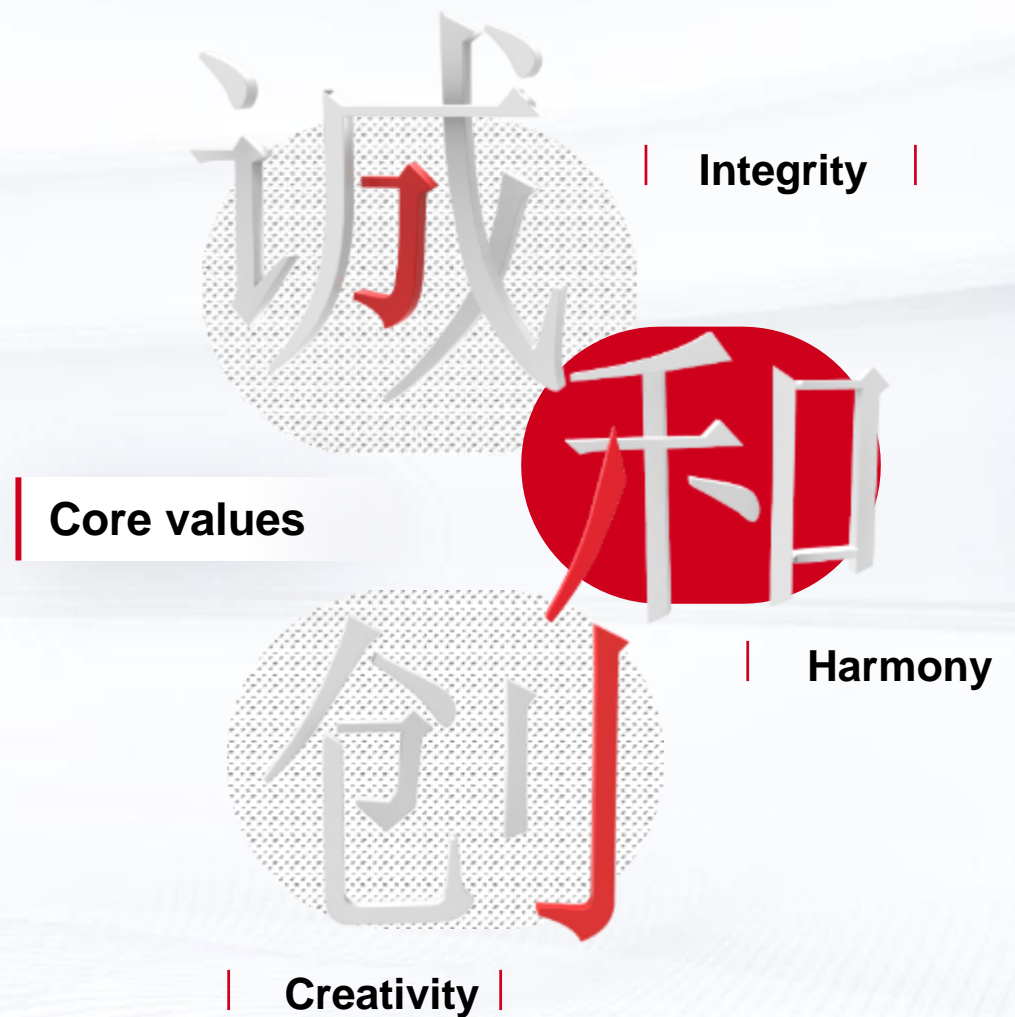
Drive the future with science and technology, providing inexhaustible and efficient power for the world

Wolong is committed to provide green, energy-saving and efficient power to the world, makes better living and contribute to the goals of reducing CO2 emissions and carbon neutrality.

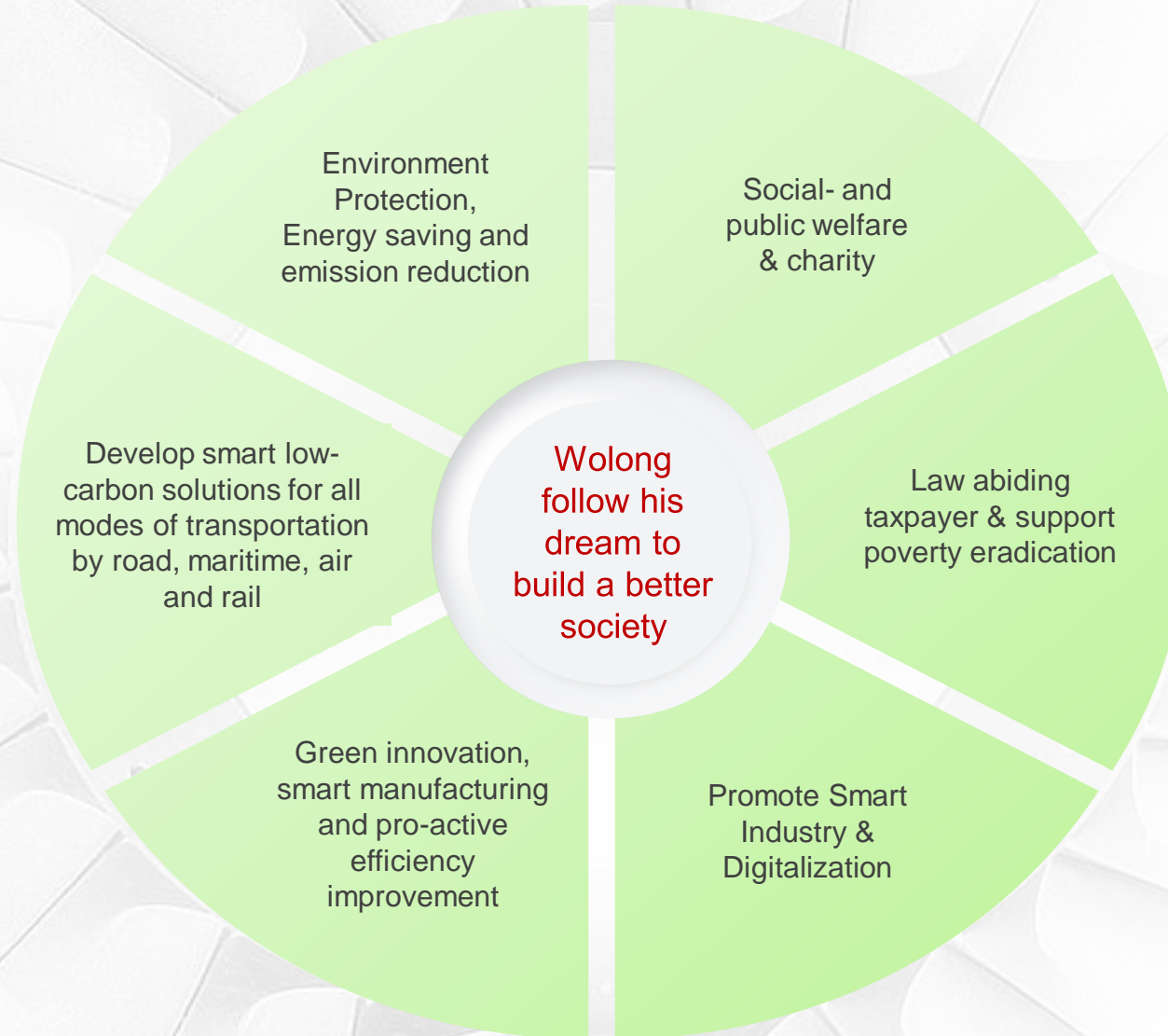
— Vision

To be Global Number 1 of the Motor Industry

Wolong adheres to the operation principles of technology leadership, accurate and lean processes, offering first class services and reliable products to our global customers.



> Social Responsibilities





WOLONG

Power your future