

# MOTOR COMPANY PROFILE



# Motor Milestone



Brushed Motor for  
power tools  
Mass production



Yacht motor



EPS motor



Mass Production of  
Brushless Motors

2002-2004

2014

2020

2020-2021

2022

2024

2025

R&D of Linear, Flat and  
Coreless Motors

Successfully applied for  
patents and put into mass



Partnered with  
**Microsoft** in 2020

Partnered with **TE** in 2021 and  
obtained mass production  
qualification from **BYD**



Frameless torque motor .....





# Motor Production Base



# Motor Global Factory Glance



Hangzhou China



Mexico



Vietnam



Guangdong China



# Qualifications

IATF 16949

ISO  
9001

AS  
9100

CSR Report

ISO  
14001

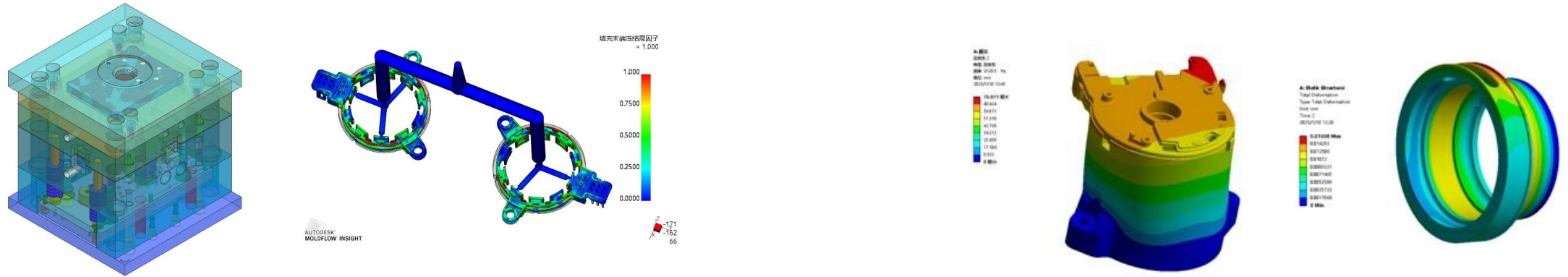
ISO  
45001

ISO  
27001

AQB II  
Certificate

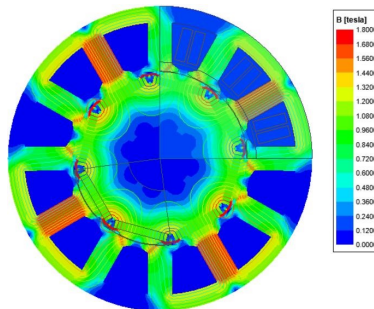
# Motor Design & Engineering

## Simulation Analysis

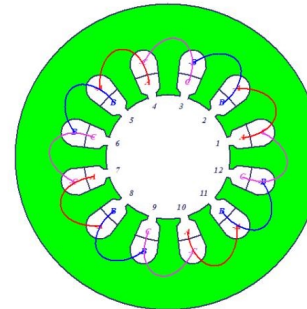


Mold Flow Analysis

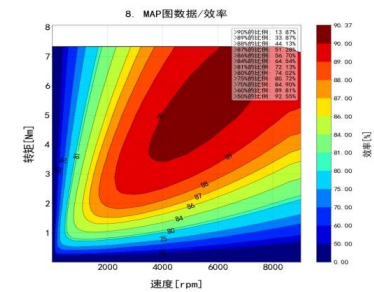
Structural Analysis



Magnetic Flux Density Analysis



Winding Analysis

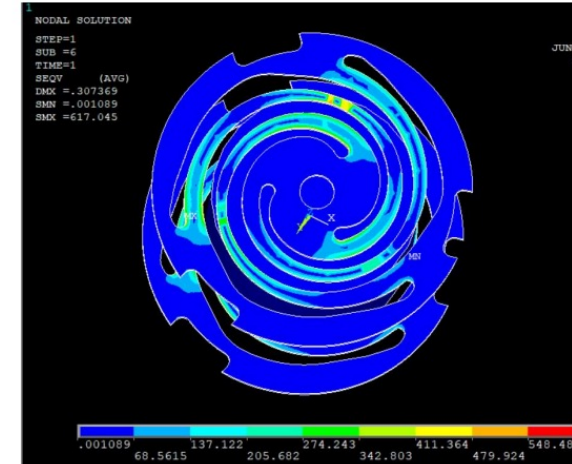
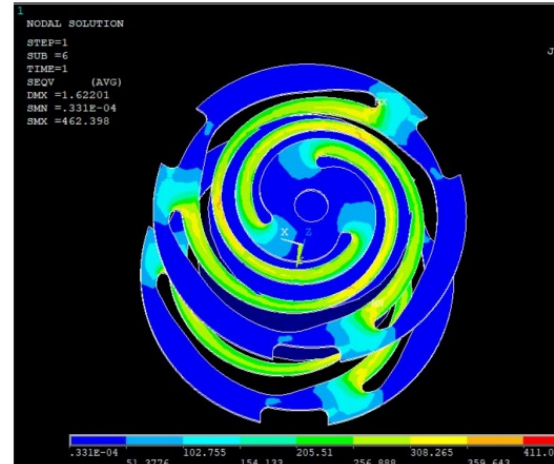
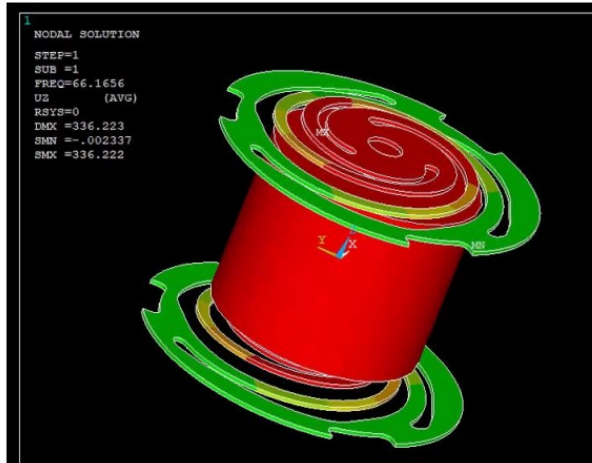


Efficiency Map Analysis

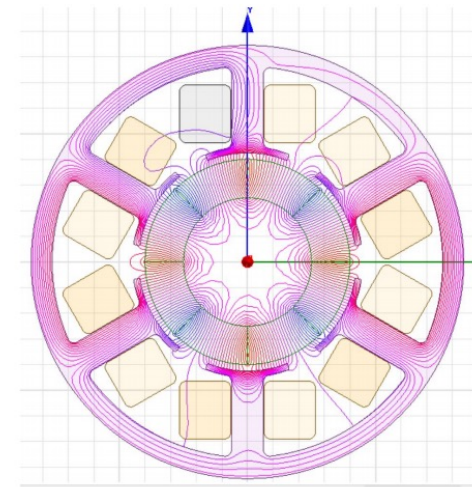
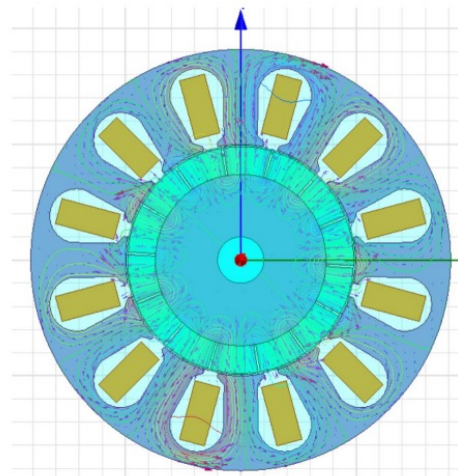
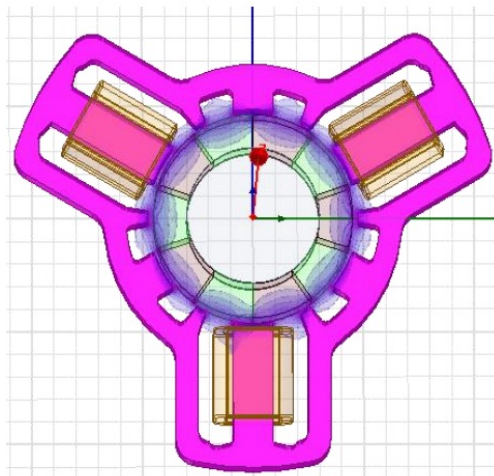


# Motor Design & Engineering

## *LRA Motor Performance Simulation*



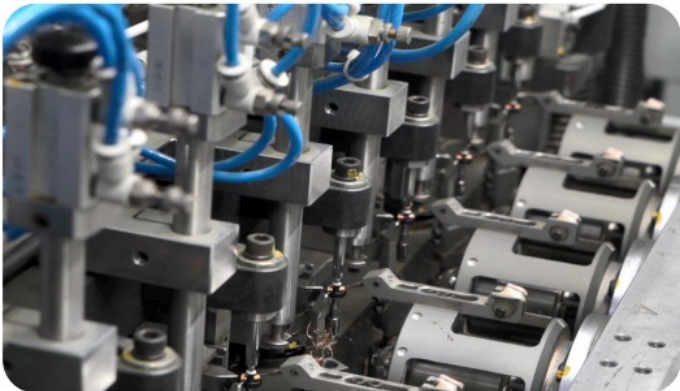
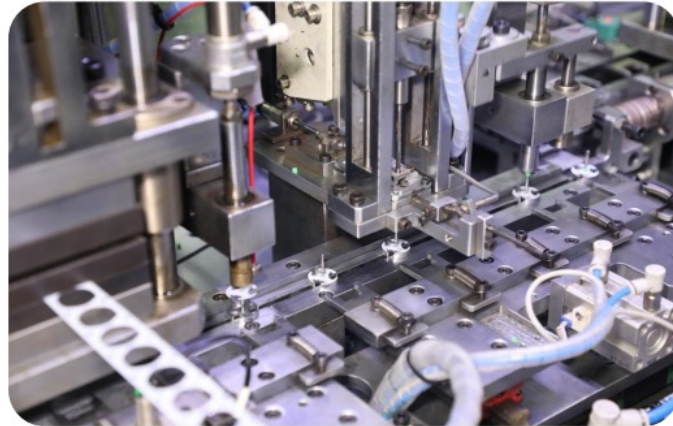
## *DC Motor Performance Simulation*





# Motor Workshop Glance

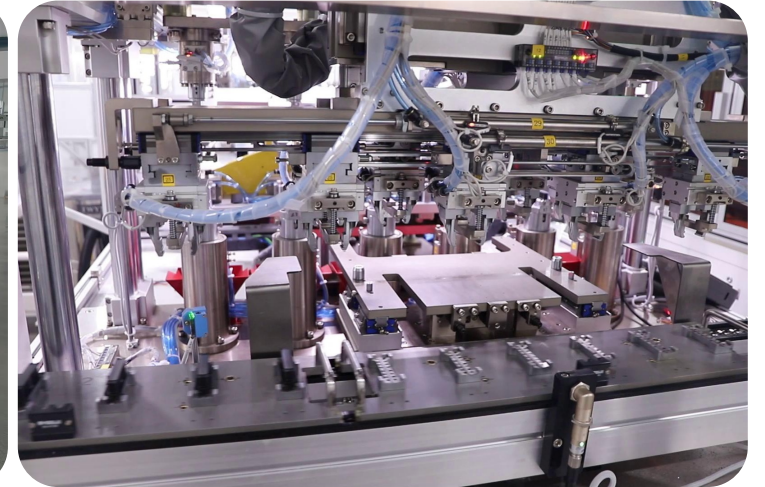
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# Motor Workshop Glance

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# Motor Quality Control



*DC Motor Dynamo mete*



*X-Ray*



*Crosssection system*



*Crosssection system*



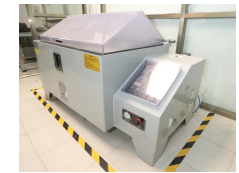
*Motor performance tester*



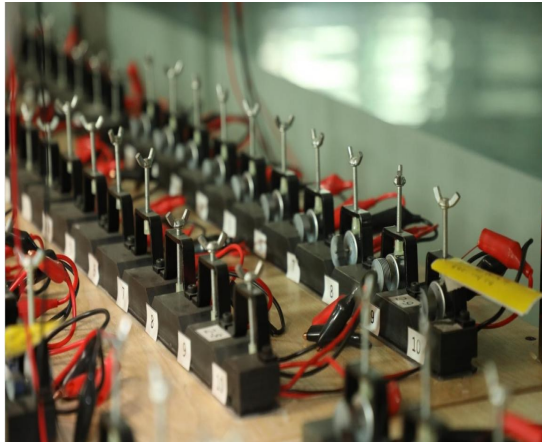
*Push/pull force tester*



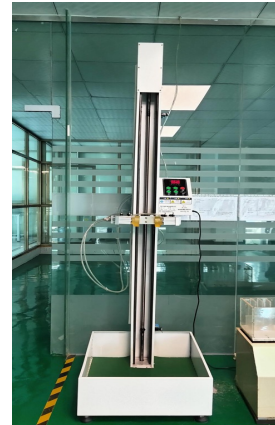
*Hardnesstester*



*Oscilloscope*



*Life Test Simulated System*



*Drop Test  
Equipment*



*Temperature/Humidity  
Chamber*



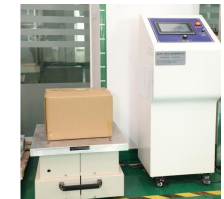
*Noise test chamber*



*Drum tester*  
**X-MAG**



*Thermal Shoc*



*Vibration Tester*

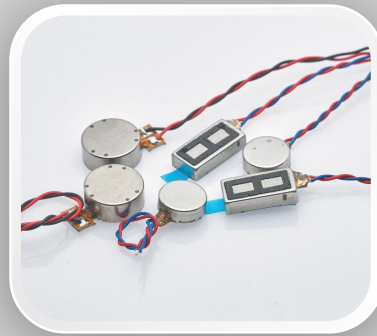
# Motor Categories



DC Brushed Motor



Gear Motor



LRA Motor



Coin Vibration Motor



Brush-less Motor



# Motor Categories



Rotor & Stator

# Motor Industries



Automotive



Power Tool



Consumer Electronics



Smart Home

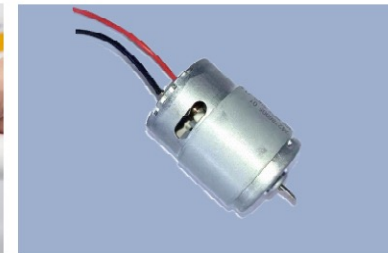


# Motor Application

## *Automotive*



## *Power Tool*



# Motor Application

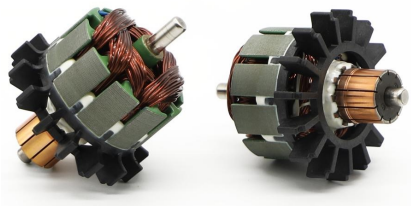
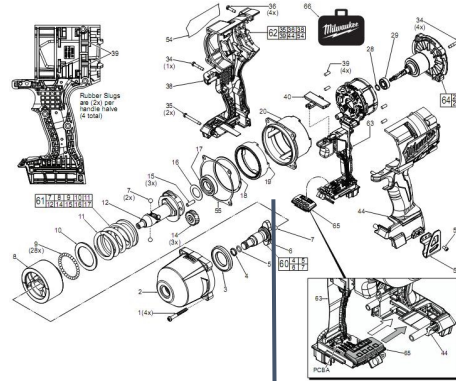
## Consumer Electronics



## Smart Home



# Motor Case Study



## Product Introduction:

DC Brushed Motor Assembly

Used in Milwaukee's power tools

- Stator
- Rotor

## Application Environment:

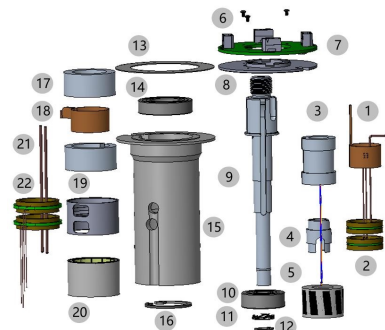
- Electric Drill
- Impact Drill
- Electric Saw
- Angle Grinder
- .....

## Performance Parameters:

- Voltage: 18-24V
- Rpm: 0-20000
- Torque: 0-1200 in-lbs
- .....



# Motor Case Study



## Product Introduction:

Brushless Motor Assembly

Applied to Velodyne's Autonomous Driving System

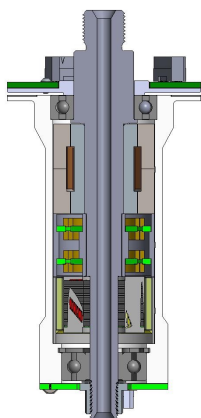
- Stator
- Rotor
- Transformer
- Communication Module

## Application Environment:

- Autonomous Vehicle
- Unmanned Aerial Vehicle
- Map Surveying and Mapping
- Intelligent Transportation
- Marine Exploration

## Performance Parameters:

- Laser Channel Count: 128
- Scanning Distance: 300m
- Error:  $\pm 3\text{cm}$
- Power: 26W
- Rotational Speed:  
 $600 \pm 3\text{rpm}$  or  $1200 \pm 10\text{rpm}$
- Ingress Protection (IP) Rating: IP67
- Load: 1.75Kg
- Rotor Moment of Inertia  
(at 1.75 kg mass):  $5500\text{kg} \cdot \text{mm}^2$
- Transformer Specifications:  
 $5\text{V} \pm 3\%$ , 1:1,  $5\mu\text{H} \pm 10$
- Data Transfer Rate: 1Gbps. Max
- .....



# Motor Case Study



## Product Introduction:

Brushless Motor Rotor

Used for Yacht Steering Drive Motor

- Rotor Assembly
- Sensor Magnet Steel
- Bearings and Pulleys

## Performance Parameters:

- Dimension: D30.734\*125
- Dynamicbalancelevel: G2.5
- Injectionmaterial: Nylon74G33L
- Tablemagnetic: 360-450mT
- Operating temperature: 150°C
- .....

## Application Environment:

- Yacht
- .....



# Motor Case Study



## Product Introduction:

Coreless Motor

- Rotor Assembly
- Stator Assembly
- Assembly Unit

## Performance Parameters:

- No-load Rotational Speed: 8000-150000rpm
- .....

## Application Environment:

- Robot
- Low-Altitude Aircraft







THANKS

W W W . X - M A G N E T . C O M