

Racing Electric Instrument Co.(REI)



Fuel pump motor for all series of Airbus commercial airliners.



Company Profile

Racing Electric Instrument Co. (REI)

- Founded in 1988 by Mr. Jackson Lai (Chairman)
- Total Employee: **126 in Nov. 2022.**
- Offices: **Chung-Li** (Head office Motor) and **Taichung** (motor controller)

■ Main Products:

- AC Motor
- BLDC Motor
- Resolver
- Actuator
- Controller



TAIWAN, ROC
Area: 13,974 sq mi
Population 23M



- 40 minutes to TPE City
- 18 minutes to TPE Int'l Airport

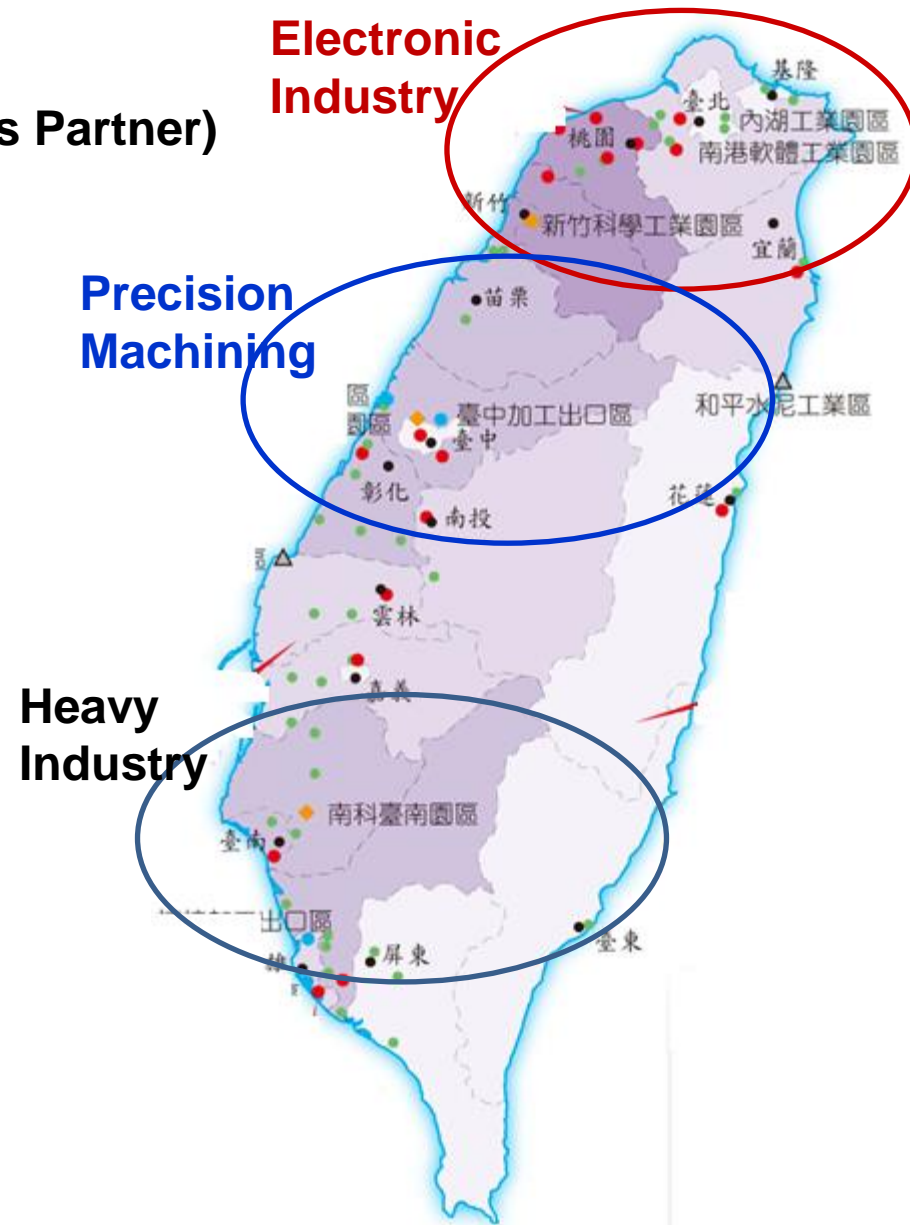
■ Business Model:

- Design and development of various types of motors from prototyping, pilot run to mass production for **aerospace industry** and **high added value industrial motors with controller.**

Why Taiwan?

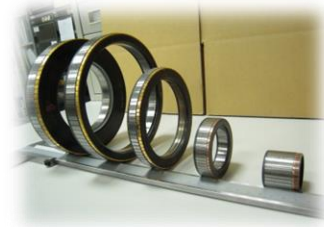
(The Strength & Beneficial to Business Partner)

1. 95% of 18,000 companies are Small & Mid Size
(Dedicate, Focused...)
2. Well Resourceful
(Cross discipline, workmanship...)
3. Very Flexible
(Rapid prototyping, Customization capabilities, Well connected to supply chain...)
4. Great Government Incentives
(ICP, SBIR, Technology Incubations)

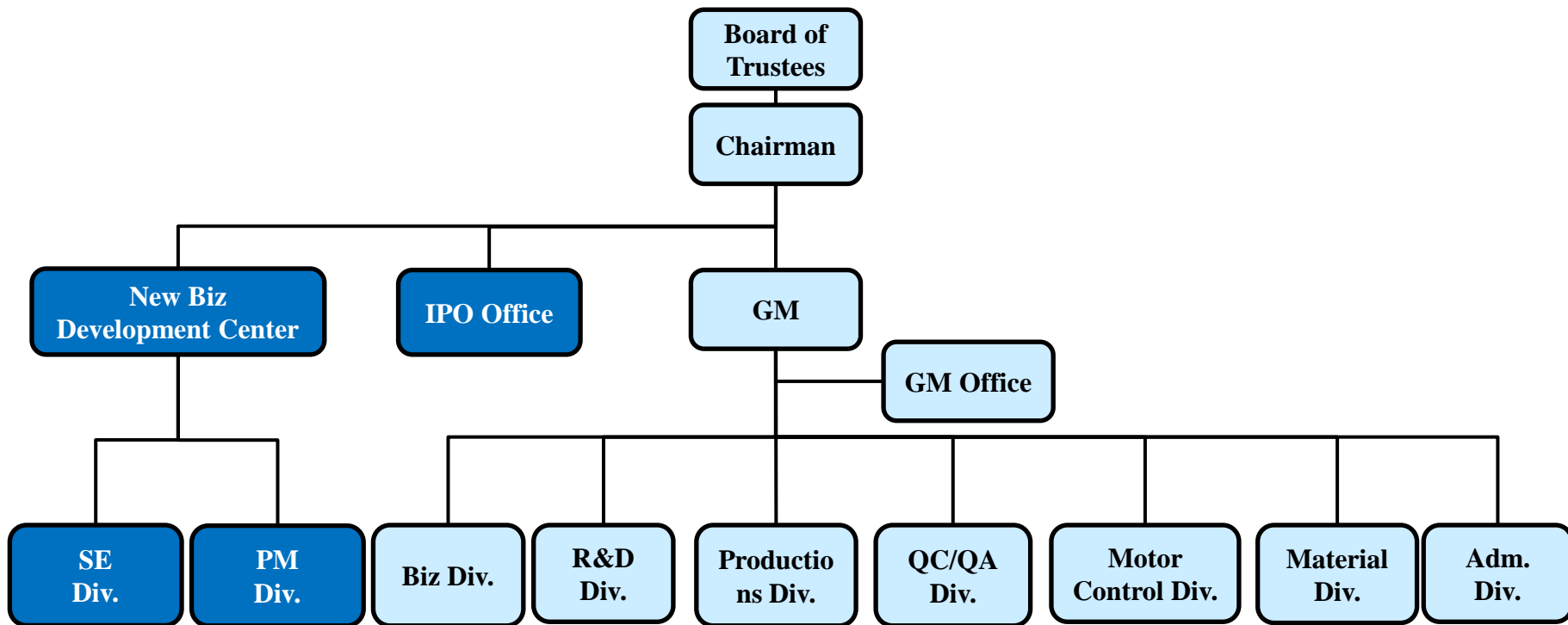


Why Racing?

1. Continuous Improvement/Investment
(Process, Quality, OTD, Cost...) / (HR & new Equipment...)
2. Uniqueness (Strong Component/Systems integration – 1st. AS 9100C certified Motor supplier in Taiwan)
3. Strong SCM in (Motor, Controller, Resolver, Actuator...)
4. Strong Access to (Research Institute & Universities)
5. Strong Support from (Government)



REI Organization Chart



Main Products

● **AC/DC Motor**



● **BLDC Motor**



● **Resolver**



● **Actuator**



● **Controller**



● **Pump Integration**



Major
Applications

**Aerospace
& Defense**

Fuel Pump in Air Vehicles

Missile

Pan & Tilt Positioners

UAV

Others

Industrial

Fuel Pump, Hydraulic Pump

Robot Arm

Electric Vehicle

Throttle Control

Others

AS - 9100D Certification

(Strong Component/Systems integration –
1st. AS 9100C certified Motor supplier in Taiwan)

**AS9100 Rev D / JIS Q9100: 2016 /pr EN 9100:2016
ISO 9001:2015**



N° 2010/39008.5

AFNOR Certification certifies that the quality system implemented by:
AFNOR Certification certifie que le système qualité mis en place par :

RACING ELECTRIC INSTRUMENT CO., LTD.

for the following activities:
pour les activités suivantes :

**DESIGN AND MANUFACTURING OF ELECTRIC MACHINERY MOTORS
FOR THE AEROSPACE INDUSTRY.**

has been audited in accordance with the EN 9104-001:2013 and found to meet the requirements of the standard:
a été audité conformément à l'EN 9104-001:2013 et a été jugé conforme aux exigences requises par la norme :

AS9100:D / JISQ 9100:2016 / EN 9100:2018

and is developed on the following locations:
et est déployé sur les sites suivants :

Central Function: 1F&2F, NO.27-2 & 1F&2F&4F, NO.27-3 & 6F, NO.27-1 & 6F,
NO.27, JILIN RD., ZHONGLI DIST., TAOYUAN CITY 320, TAIWAN (R.O.C.)

Issue Date (year/month/day) :
Date d'émission (année/mois/jour)

2021-05-06

Expiry date :
Date d'expiration

2024-05-05



CERTIFICATION
DE SYSTÈMES
DE MANAGEMENT

Julien NIZRI
Managing Director of AFNOR Certification
Directeur Général d'AFNOR Certification



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N° 2010/38703.5

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RACING ELECTRIC INSTRUMENT CO., LTD.

for the following activities:
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FOR THE AEROSPACE INDUSTRY.**

has been assessed and found to meet the requirements of:
a été évalué et jugé conforme aux exigences requises par :

ISO 9001 : 2015

and is developed on the following locations:
et est déployé sur les sites suivants :

1F&2F, NO.27-2 & 1F&2F&4F, NO.27-3 & 6F, NO.27-1 & 6F, NO.27, JILIN RD.,
ZHONGLI DIST., TAOYUAN CITY 320, TAIWAN (R.O.C.)

This certificate is valid from (year/month/day)
Ce certificat est valide à compter de (année/mois/jour)

2021-05-06

until
jusqu'à

2024-05-05



CERTIFICATION
DE SYSTÈMES
DE MANAGEMENT

Julien NIZRI
Managing Director of AFNOR Certification
Directeur Général d'AFNOR Certification



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check the validity of
the certificate.

Nadcap Certification - Welding



This certificate is granted and awarded by the authority of the Nadcap Management Council to:

Racing Electric Instrument Co., Ltd.

6F., No. 27-1, JILIN RD. ZHONGLI DIST.
Taoyuan City, 320
Taiwan

This certificate demonstrates conformance and recognition of accreditation for specific services, as listed in www.eAuditNet.com on the Qualified Manufacturers List (QML), to the revision in effect at the time of the audit for:

Welding

Certificate Number: 10195185172
Expiration Date: 30 April 2020

Michael J. Hayward
Vice President and Chief Operating Officer

Performance Review Institute (PRI) | 161 Thorn Hill Road | Warrendale, PA 15086-7527

REI'S Capability, Design \Rightarrow Manufacture \Rightarrow Test \Rightarrow Production

Test Equipment



Machining Shop Support



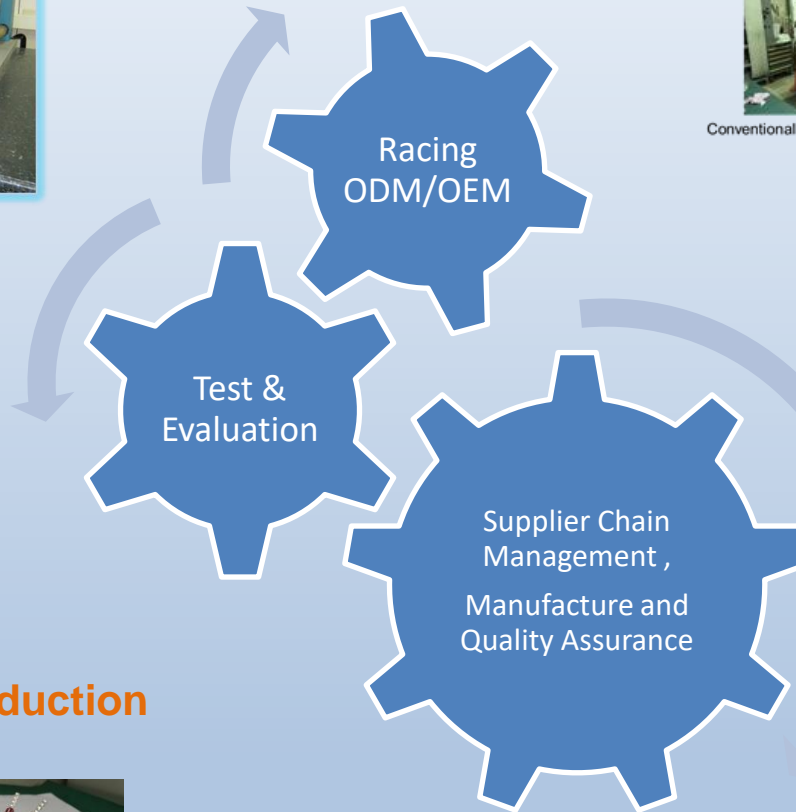
Functional Test



Manufacture & Production



2023/10/3



Supply Chain



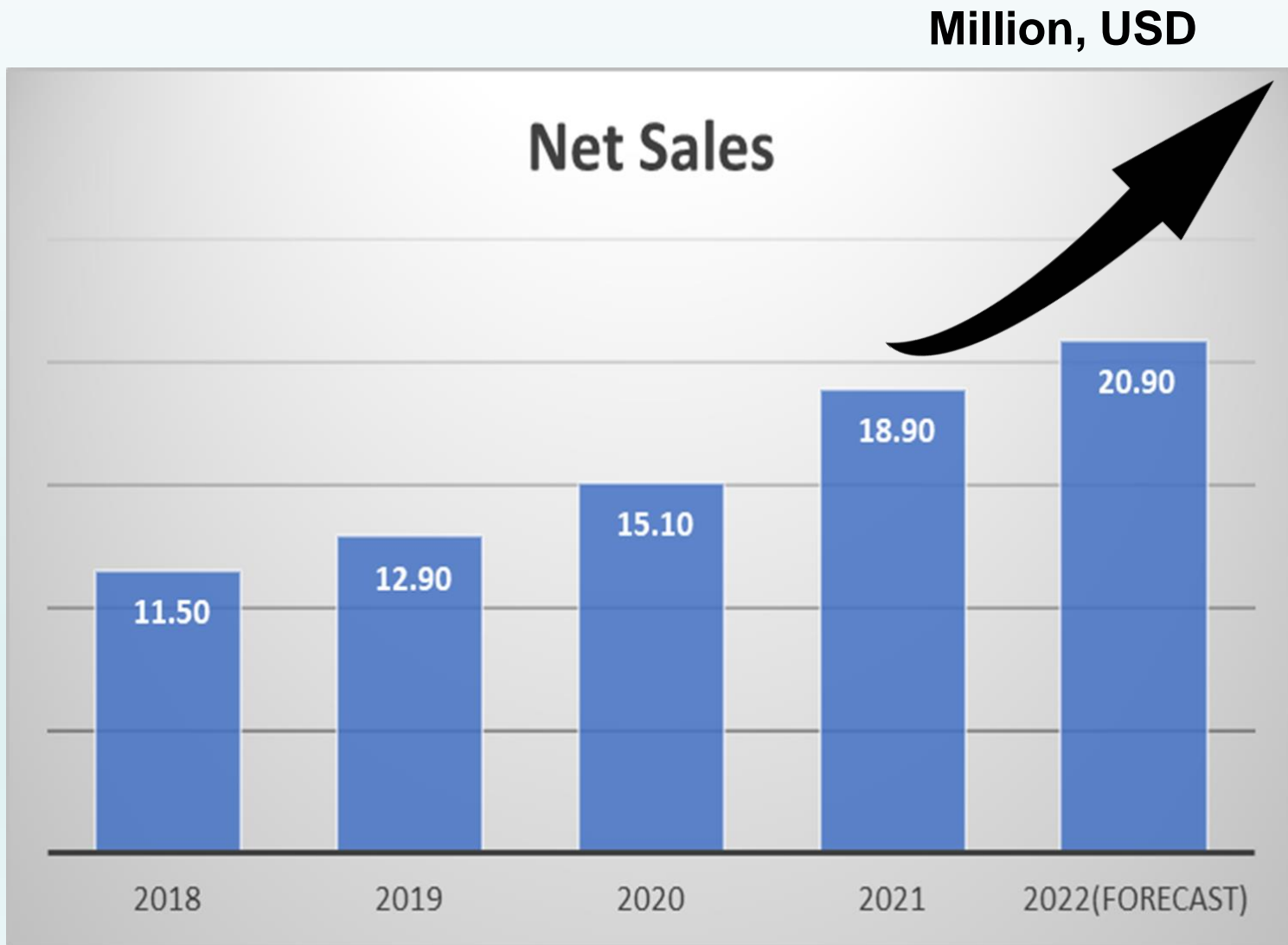
Vacuum Heat Treatment



Inspection Equipment

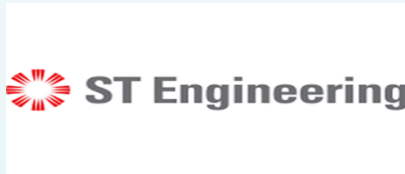


Net Sales 2018 - 2022



Key Customers & Systems

- *Key International Aerospace & Military Customer*



Singapore

Turkey

Singapore

- *Key International Industrial Customer*

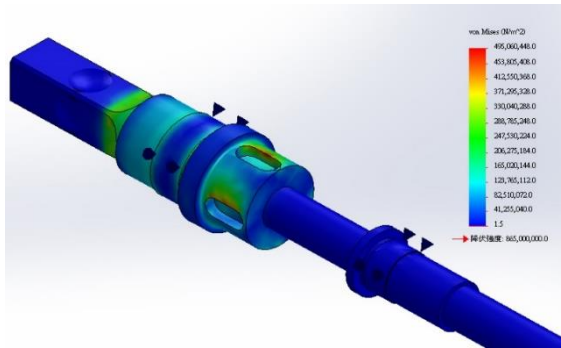


Switzerland

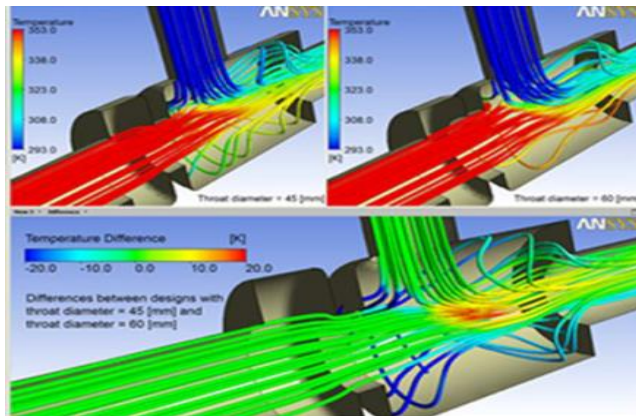
- *Local Military Customer*



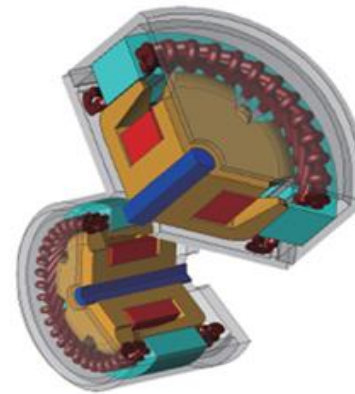
Design & Analysis Capability



Structure Stress Analysis



Fluid dynamics and heat transfer Analysis



JMAG®
電磁場多物理模擬軟體



JMAG軟體由日本JSOL公司開發

Electric Machines Design and Analysis

Facilities / Equipment



Conventional Manual Lathe



CNC Milling Machine



CNC Lathe



Laser Welding Machine



Wire Cut Machine *2



Vacuum Heat Treatment furnace



Silicon Lamination Spray Machine



Coil Winder Machine



Coordinate Drilling Machine



Hobbing Machine



Stamping Machine

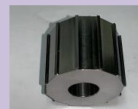


Grinding Machine, Flat Surface

Manufacturing / Production



Lamination Stack



Housing, Mechanical Parts



Shaft

Equipment, Mechanical Inspection



OPTICAL MEASURING MACHINE



CMM *2



Optical Measuring System *2
for Motor Shaft / Rotor



ROCKWELL HARDNESS TESTER



Constant Temperature Chamber



Image Dimension
Measurement System

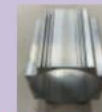
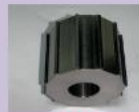


CNC Gear Measuring System

Mechanical Inspection



Silicon Lamination



Housing, Mechanical Parts



Shaft



Coating Thickness Gages



SURFACE ROUGHNESS Gauge



HEIGHT GAGE

Equipment, Electrical Inspection



Power Supply *5



Signal generator



Oscilloscope



LCR Meter



Digital Readout



Stator / Stator Assembly



MiliOhm Meter



ANGLE POSITION INDICATOR



Flux Vector Control and Drive



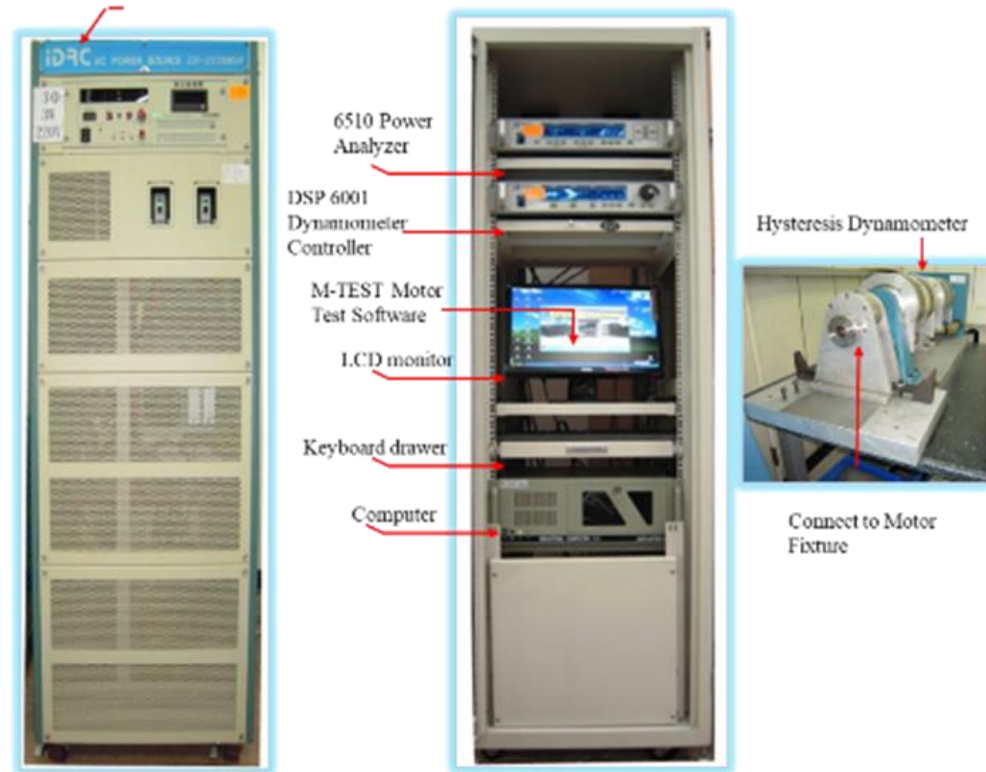
IMPULSE WINDING
COMPONENT TESTER



Isolation Pressure Tester



Dynamometer System





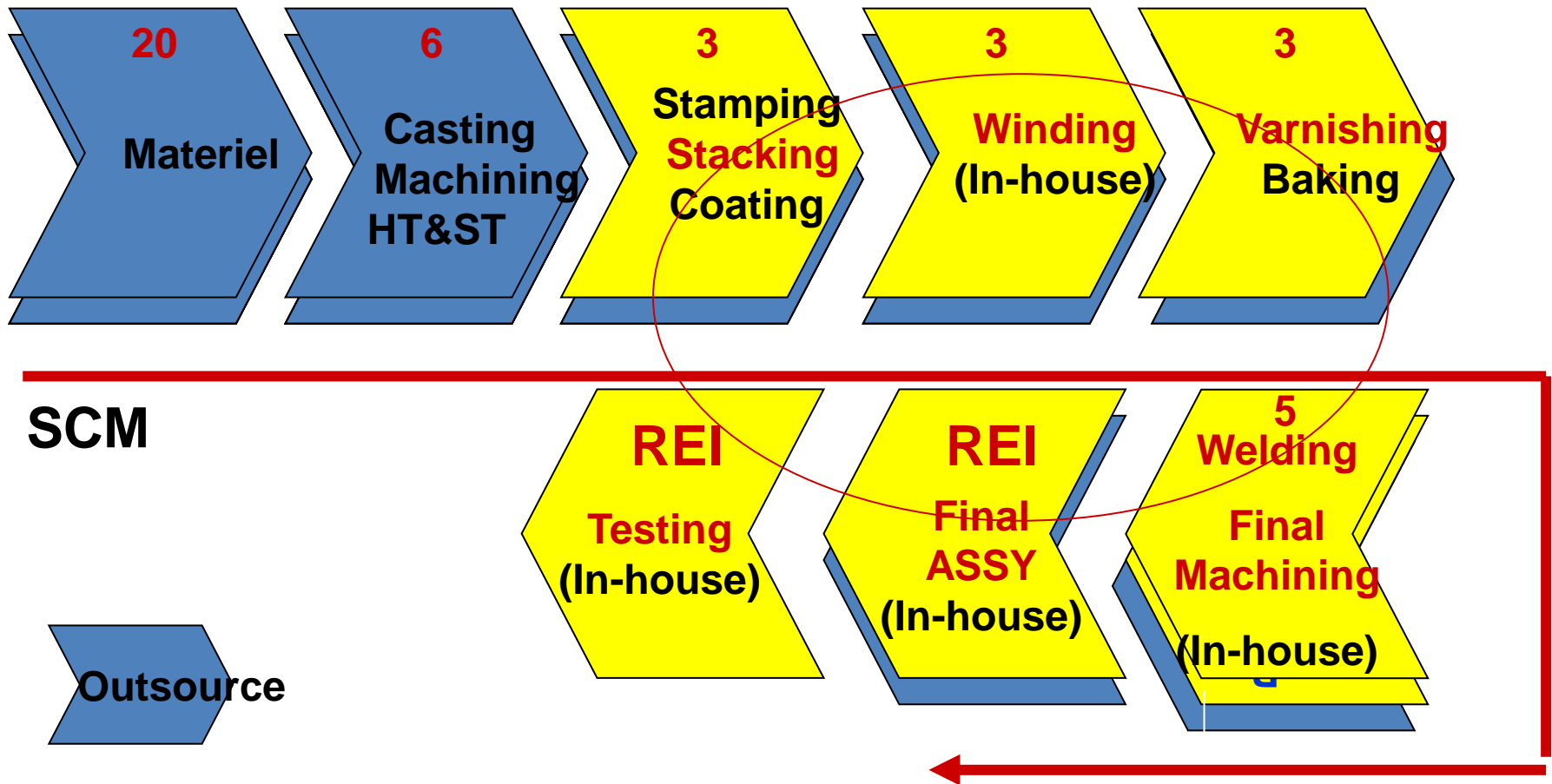
Stator Integrated Performance Testing System



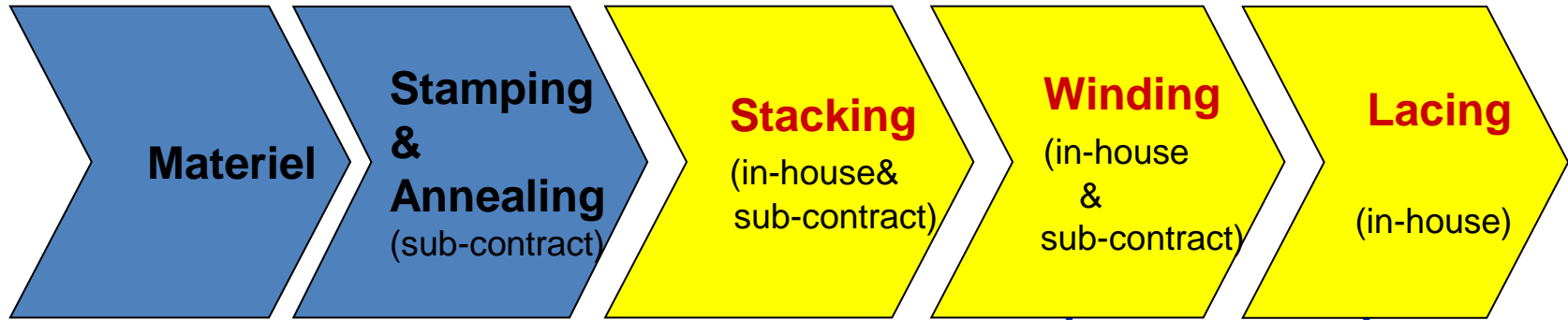
- GTW-200: Winding Tester (include expanding model)
- 6420- Impedance Analyzer
- 6913- Stator Tester (13CH)
- 6905- Hi-pot Tester
- GIB-100: System Control unit
- IPC-600: PC-BUS Industrial Computer
- ASE-220: PC control interface

Supply Chain Management

Racing integrates the most capable suppliers on casting, machining, auto-stamping, coating, varnishing, welding, etc. to provide the best product for our customers.



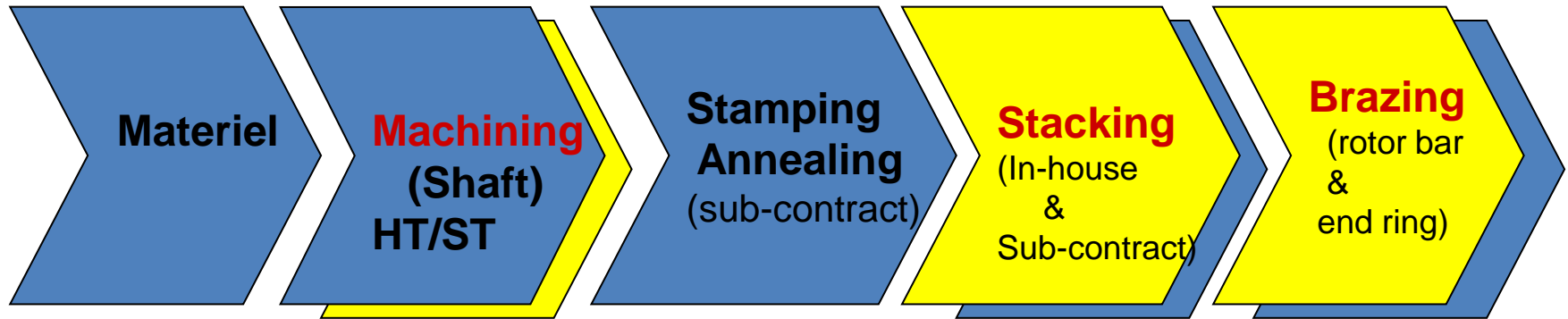
Supply Chain Management (Stator)



SCM



Supply Chain Management (Rotor)



SCM

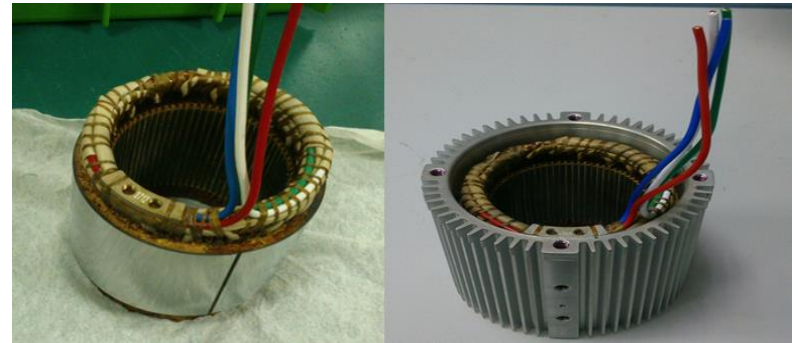




Product List

AC Induction Motor

All the AC Induction Motors that REI manufacturing are built to print currently, REI plays as an OEM company for this kind of products but also have the design and development capability for the AC Induction Motors.



Resolver and its applications

Sleeve and Hub

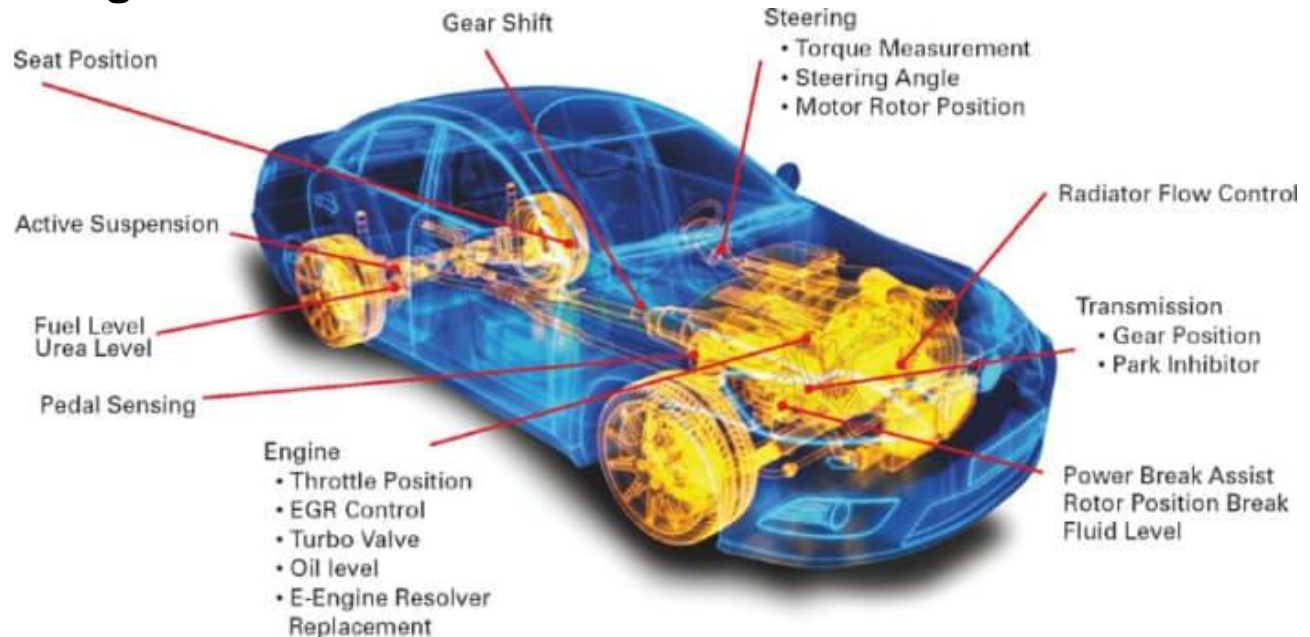


Position sensing

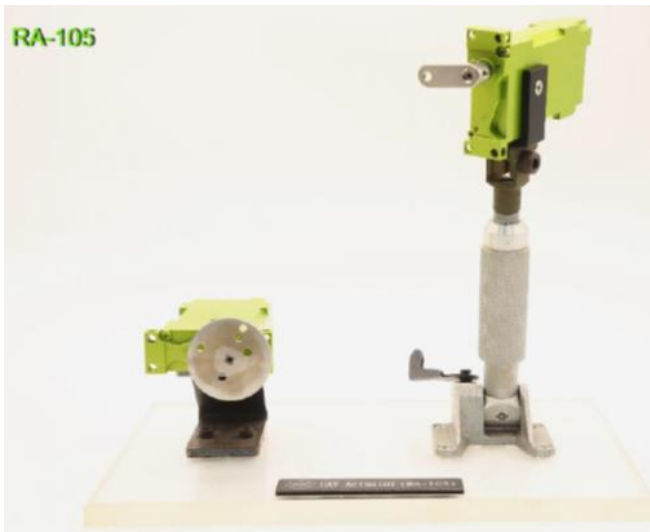
Sleeve and Hub , with Flange



Bare



Rotary actuator and its application



Tien Kung SAM

Actuator

RA-105 (for UAV)



RA-105 Product Advantages:

RA-105 is very similar to Kirfort-2000 but different design concept, with the competitive advantage of better function (patterned) & price in the current UAV market.

Torque Motor and its applications

Brushed/Brushless DC Torque Motor - Frameless



Gimbaled Sensor for Aviation Applications

Torque Motor and its applications

Brushed/Brushless DC Torque Motor - Housed Type



Motion Control



Fuel Pumps



Robot Control



Transportation Vehicle



Hydraulic Pumps

AC Synchronous Generator and its applications



Controller of Brushless DC Motor

Capability - Customized to meet specific requirement

- **Voltage Range : DC 12V ~DC 560V, AC 90V ~ AC 380V**
- **Current Range : 0 Amp ~ 150 Amps**
- **Speed Detection : Hall sensor 、 Resolver 、 Sensorless**
- **Drive Mode : Six Step Square Wave, FOC + Sinewave**
- **Control Mode : Speed Control, Current Control, Temperature Control, Position Control**
- **Application Products: Actuator, 2-axis Stabilizer Platform, Air Compressor, Fan, Refrigerant compressor, Refrigerator**

Controller of Brushless DC Motor

Actuator: 28V/3A/position control



28V/6A/position control



Pan & Tilt Positioners Control



**Pump 12V/3A/ sensorless /speed
24V/6A/speed control**



Ground Equipment for Space

Communication - Motor & Actuation Applications



REI plays as a parts supplier.

UAV AI EO/IR+Gimbal System

https://www.youtube.com/watch?v=Myb_D0iMlic





Summary

Racing, a **Reliable, Energetic & Innovative (REI)** company, will create added value to our Partner & Customers always!

Thank You!

We work hard & smart to providing quality products to you!

RACING ELECTRIC INSTRUMENT CO., LTD.

2nd Fl, No.27-2, CHILIN RD.
CHUNG LI INDUSTRIAL PARK.
TAOYUAN TAIWAN, R.O.C
TEL:886-3-462-9511~2
FAX:886-3-462-9509
E-mail: racing@racing.com.tw