Denkei

# DENKEI TECHNOLOGY R&D (SHANGHAI) CO.,LTD

Ver 12.0 *Jan.2021*

## Company Introduction

# Denkei

# Denkei China / Denkei Technology R&D

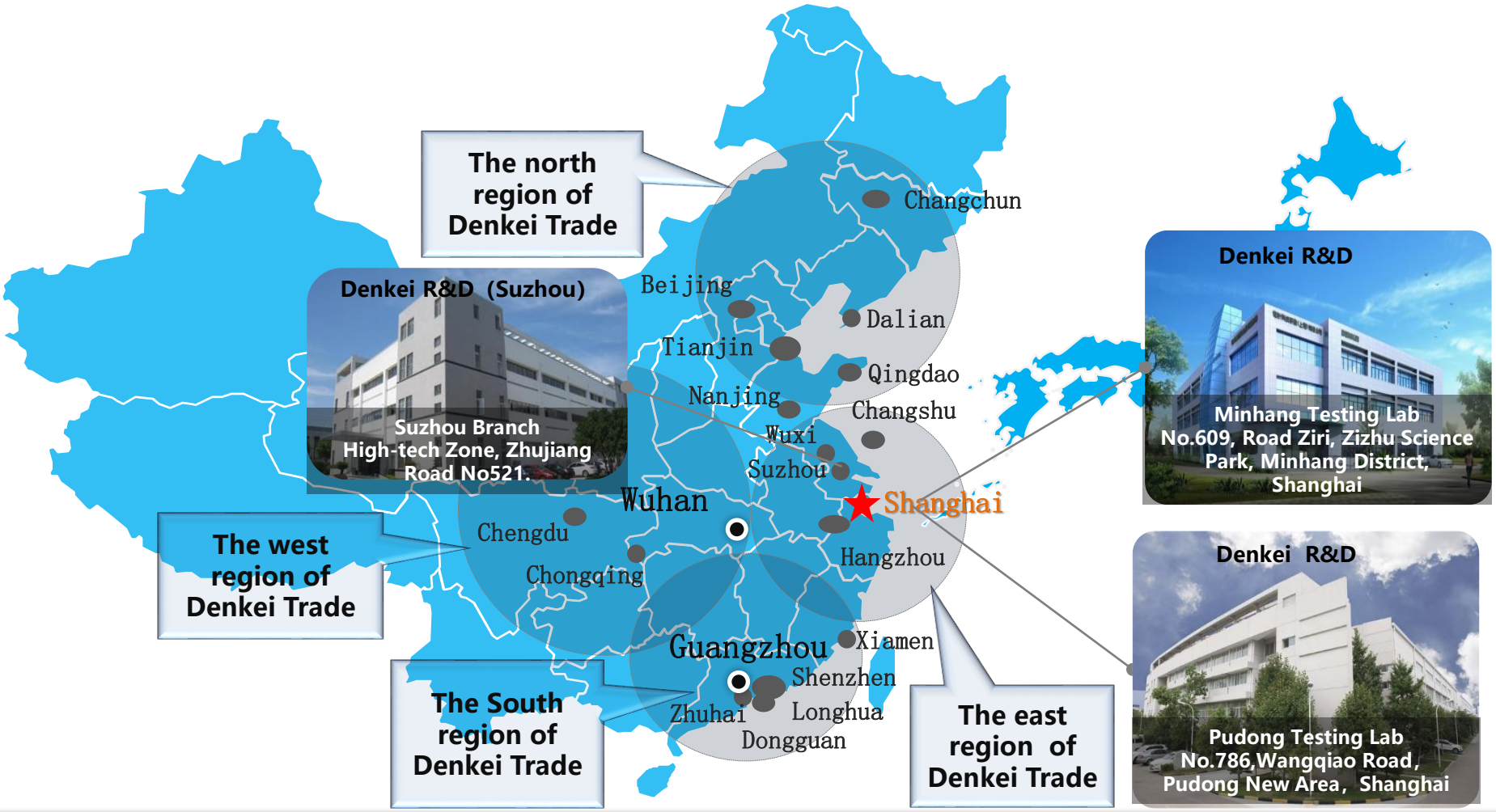
Nihon Denkei

**Founded in 1950, Denkei is the largest comprehensive supplier of electronic measuring instrument and environmental test equipment in Japan.**

| | |
|---|---|
| **Denkei China** | **DENKEI TRADING (SHANGHAI)CO.,LTD** |
| | **DENKEI TECHNOLOGY R&D(SHANGHAI) CO.,LTD** |

| **Denkei Trading Started in 1996** | **Denkei Technology R&D Started in 2007** |
|---|---|
| **Equipment Sales/Repair**<br>**Calibration (cooperation)**<br>**Logistics**<br>**Customs clearance** | • 2007～2009年: Authorize Testing service; Optical calibration<br>• 2015: Calibration service accreditation obtained (CNAS)<br>• 2017: Shanghai Pudong Testing Lab established; Listing on the new third board in China<br>• 2018: New energy Testing service imported; China Metrology Certification (CMA) obtained<br>• 2019: Volkswagen new energy equipment recognition, Hozonauto new energy recognition obtained<br>• 2020: Denkei R&D(Suzhou) Co.,ltd established<br>• 2020: Establish a joint cooperation relationship with TUV Rhein (New energy parts and high voltage devices) |

# Denkei Locations of Denkei R&D/Denkei trading



# Denkei

# Denkei Technology R&D introduction

China National Accreditation Lab
ISO / IEC 17025
Certification No: CNAS L3746

China Metrology
Accreditation
CMA

VW Environment
Certification

VW New Energy
Certification

NIO
Certification

## Major auto customers

大众汽车　本田汽车　威马汽车

上汽荣威（上汽捷能）　合众汽车　海马汽车

泛亚　爱驰亿维

丰田研发　天际汽车

## Major auto parts customers

UAES 联和汽车电子　Visteon 延锋伟世通　Autoliv 奥托立夫　veoneer 唯宁尔

BOSCH 苏州博世　Webasto 伟巴斯特　HME 华域麦格纳　DELPHI

HELLA 海拉　YASKAWA 安川　HZSW 住电装　Valeo 法雷奥　DUPONT 杜邦

MAGNA STEYR 麦格纳斯太尔　brose 博泽　CATL 宁德

MITSUBISHI ELECTRIC 三菱电机　Nidec 尼得科　AISIN 爱信　USUI 臼井发动机

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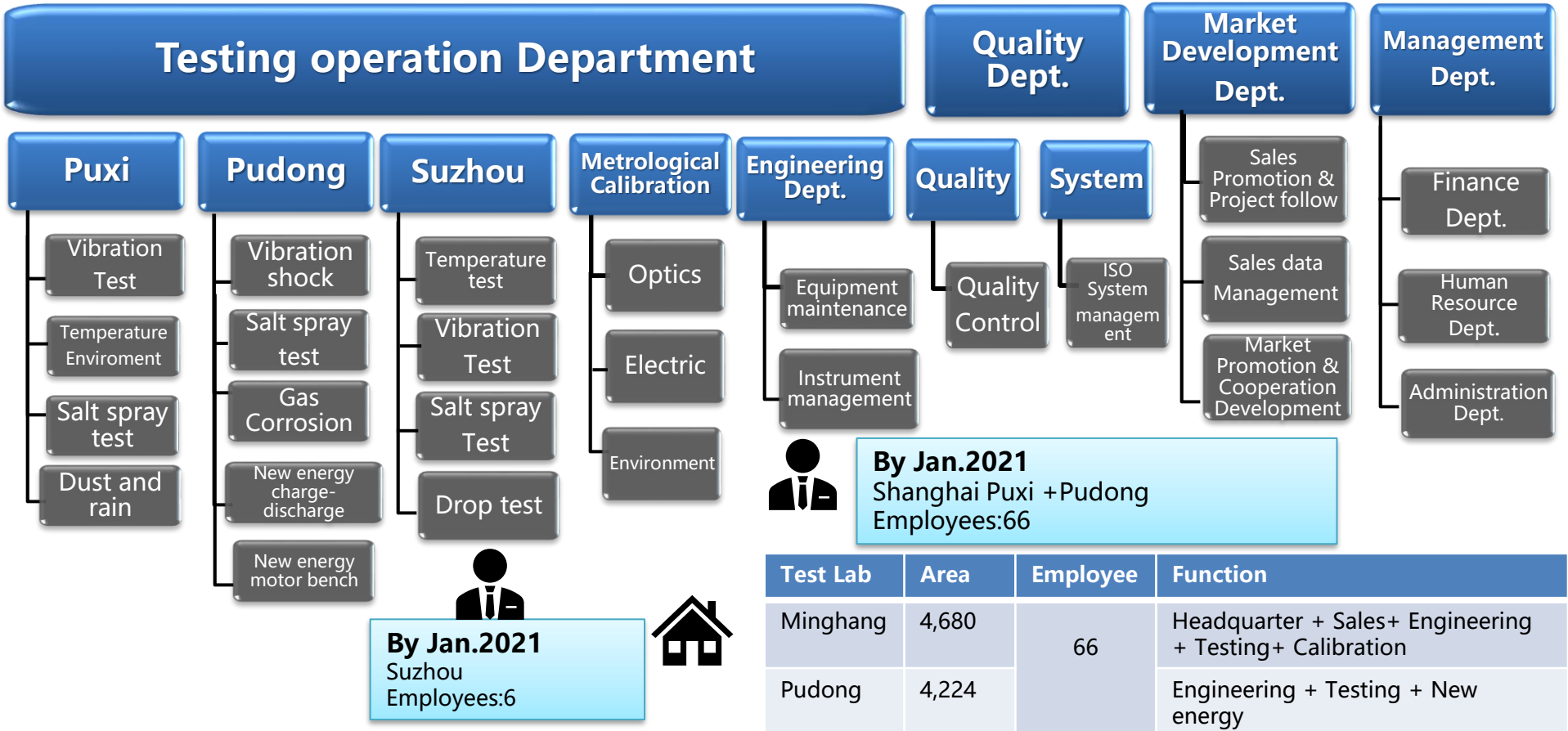
# Denkei R&D Organization Framework




| Test Lab | Area | Employee | Function |
|---|---|---|---|
| Minghang | 4,680 | 66 | Headquarter + Sales+ Engineering + Testing+ Calibration |
| Pudong | 4,224 | | Engineering + Testing + New energy |
| Suzhou | 1,840 | 6 | Sales+Testing |

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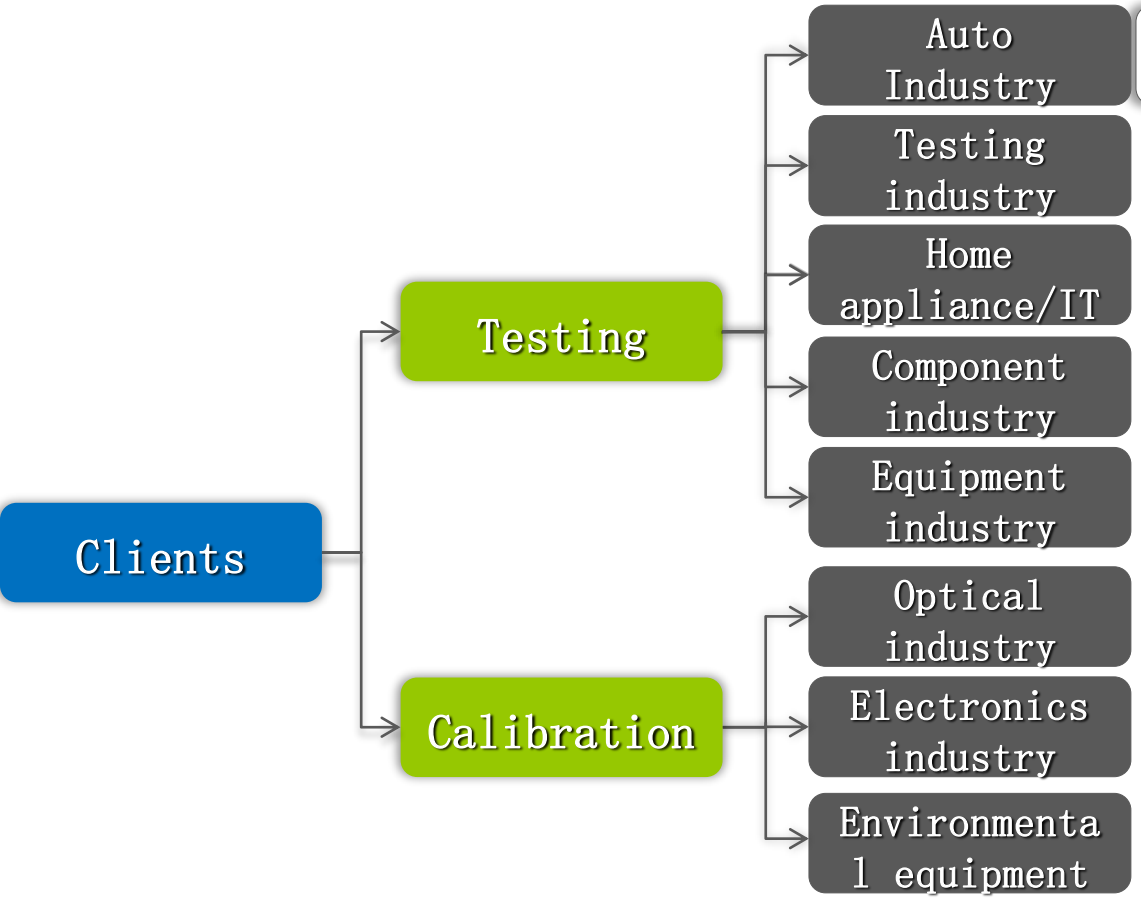
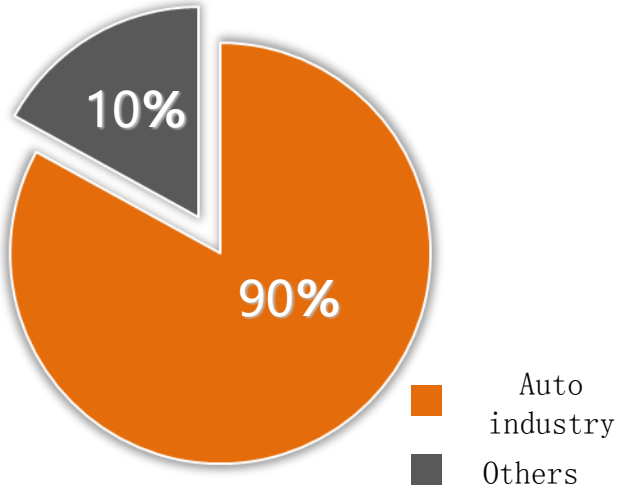
# Test Industry Share Classification




Auto industry test accounts over 90%



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# Denkei R&D Equipment list

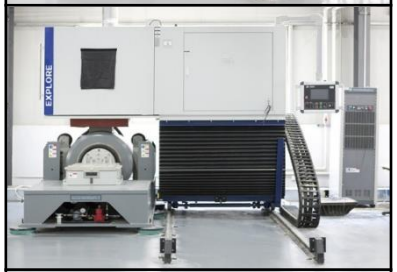
| | | |
|---|---|---|
| Thermal Shock | ETAC ESPEC ZUNDAR PARTNER | 15sets |
| Temperature/Humidity | ETAC ESPEC ZUNDAR | 42sets |
| Power Temperature Cycle | ESPEC ZUNDAR PARTNER | 12sets |
| Combined Vibration | EMIC STI | 14sets |
| Combined Salt-Spray | SUGA | 5sets |
| Physical (Xenon weather/Gas corrosion | SUGA ZUNDAR | 7sets |
| Falling/Mechanical shock/Force-pull | SHIMAZU STI | 3sets |
| New Energy | STI ZUNDAR Digatron MKL-tech SUGA Chroma | 26sets |
| Electric/Datalogger | KIKUSUI HIOKI TEKTRONIX GRAPHTEC NOISKEN | 35sets |

# Denkei Pudong Testing Center – Environment Lab

| Test Item | Test Item View | Test Item | Test Item View |
|---|---|---|---|
| Thermal Shock | | Const. Temperature and humidity/Alternated Hot(Humid) | |
| | | Water Bath | |
| Rapid temperature variation test | | High and low Temperature experiment-Enter Type | |
| Icy water shock and splash test | | Gravel Multi-Function Shock Test | |

| Environment Testing Devices |
|---|
| 22 Sets |

# Denkei Pudong Testing Center – Vibration Labs

| Test Item | Test Equipment Views |
| --- | --- |
| Vibration Test (Sine, Random, Shock)<br>"Temperature + Vibration" Three Comprehensive Test<br>"Sine+ Random" /"Random+ Random" Combined Vibration Test | <br>  <br> |

**Vibration Item: 5Sets**
**3-Comprehensive Vibration devices: 5Sets**

- 5T * 2Set
- 6T * 2Sets
- 12T * 2Set

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# Denkei - TÜV Rheinland Jonit LAB.

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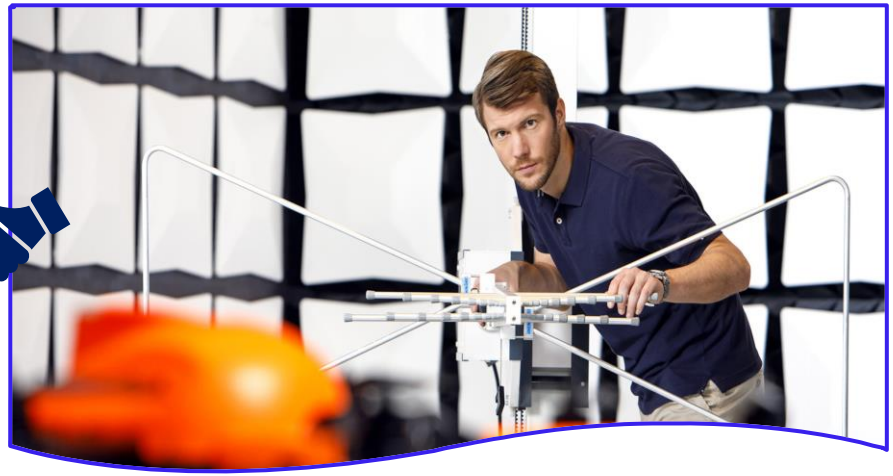
TÜVRheinland®
Precisely Right.



## Denkei Technology R&D(Shanghai) Co.,Ltd

- Improve the technical level
- Construction of qualified laboratory
- Improvement of testing ability of new energy

**Jointly build Professional laboratory for New energy testing**

## TUV Rheinland Group

- Introduction of TUV Rhein certification service
- Development marketing in new energy based on cooperation
- Joint laboratories planning suggestions

# Denkei Pudong Testing Center – New Energy Labs-1

| Test Item | Test Item View | Test Item | Test Item View |
|---|---|---|---|
| Charge/Discharge Devices (Unit、Module、PACK) | | Const. Temperature and humidity/Rapid Temperature Change/Temperature (Step into style) | |
| | | Salt Spray Test (Step into style) | |
| | | 20T Comprehensive Vibration | |
| | | **Gas Corrosion** (Big size) | |

**New Energy Test Large Devices**

**14 Sets(8CH included)**

**New Energy Test Objects**

**Batteries**
**Motors**
**Electronic Control**

# Denkei Testing Center – New Energy Labs-2

| Test Item | Test Item View | Test Item | Test Item View |
|---|---|---|---|
| Dynameter | | Programmable DC Power Supply | |
| Mechanical Shock | | Cooling System | |
| 12T Comprehensive Vibration | | Electric control Test system (Planned) | |

**New Energy Test Large Devices**

**Multiple Sets+DC Powers (＞20Sets)**

**New Energy Test Objects**

**Batteries**
**Motors**
**Electronic Control**

## Improved Test Items:

- Electrical test：Capacity、Power test、condition simulation、life cycle。。。
- Environment Reliability：Temperature Shock、Cycle of Temp. and humid、Salt Spray test。。。

Safety test：Over Charge/Discharge test、Vibration resistance、Shock test、3 Comprehensive。。。

Battery Test

Motor Test

Electric control Test

电池包 + 电控 + 电机 ： 完整的新能源关键组件可靠性及性能试验配置

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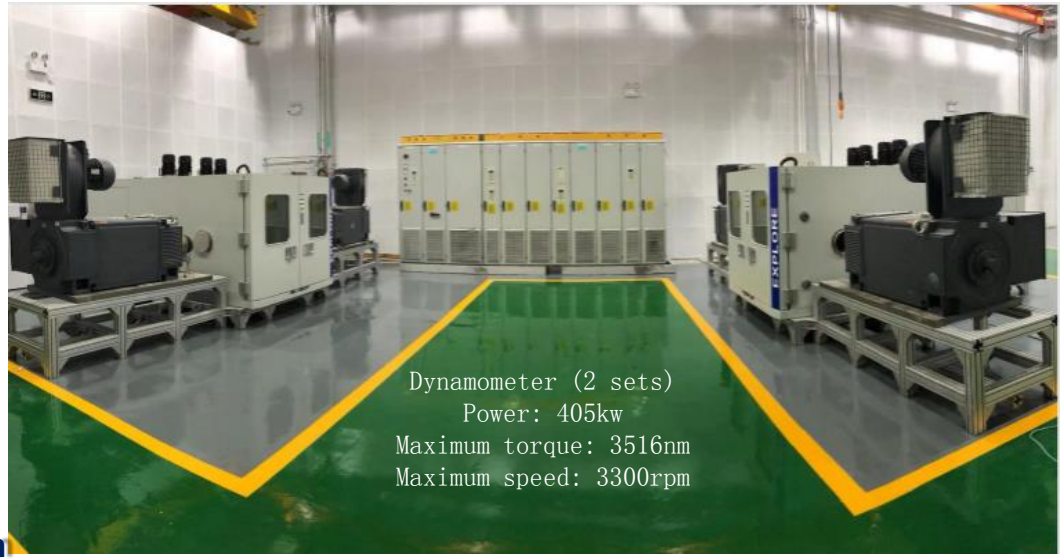
# Motor Bench Test Lab

Denkei
电计科技研发(上海)股份有限公司
Denkei Technology R&D (shanghai) Co., Ltd

CJD
南通常测机电设备有限公司
Nantong Changce M&E Equipment Co., LTD

联 合 实 验 基 地
COOPERATIVE EXPERIMENTAL BASE




## Denkei CJD

## Description of electric Powertrain testing system

### Chamber

Temperature range：-55℃~150℃±2℃
Humidity range：10-98%RH ±3%
Temperature rise speed：-40~+150,18min (No load)
Temperature drop speed：+150℃~-40,17min (No load)

### Battery simulator

Provide two way DC power supply
24VDC～800V DC
Rated power：400kW
Rated current：±1000A@400V
Peak power：500kW
Peak current：1250A

### Water cooler

Temperature range：-40℃~120℃
Temperature accuracy：±0.5℃

### Power meter

DC 650V,AC 500V；500A
Voltage and Current accuracy：
±（Reading 0.01%+Range 0.03%)
Basic power accuracy：
±（Reading 0.02%+Range 0.04%)
Data update rate：50ms～20s (Adjustable)

### Sensor channel

8 (PT100 temperature channel)
4(K-type thermocouple
8 (Pressure channel)
Expandable as required

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# Pudong Testing Center – Electrical Labs

| Test Items | Test Item Views |
| --- | --- |
| High Voltage insulation resistance test | |
| Electrical Performance test | |
| ESD （ESD Test） | |
| Instant Brake Detector | |

# Denkei Minhang Headquarter – Environment Lab-1

| Test Items | Test Item Views | Test Items | Test Item Views |
|---|---|---|---|
| Thermal Shock | | Const. Temperature and Humid/Alternated Temperature and Humid | |
| | | | |
| High Temperature Test | | | |

| Environment Labs |
|---|
| 4Rooms |
| **Environment test large Devices** |
| 42 Sets |

# Denkei Minhang Headquarter – Environment Lab-2

| Test Items | Test Item Views | Test Items | Test Item Views |
|---|---|---|---|
| Fast Temperature Change Test | | Low Pressure Test | |
| | | HAST Test (HAST) | |
| IEC/ISO Sand and Dust Test | | Rainfall Test IPX1~X4K JIS R1R2S1S2 IPX9K | |

# Denkei Minhang Headquarter - Vibration/Mechanical Shock Lab-1

| Test Item | Test Item View |
| --- | --- |
| Vibration (Sine, Random, Shock)<br>"Temperature + Vibration" 3-Comprehensive Test<br>"Sine+ Random" /"Random+ Random" Combined Vibration Test | <br> <br> |

**Vibration/Mechanical Shock Lab: 2Rooms**
**Dynamic Lab: 1room**

**Large Mechanical Test Devices: 15Sets**

**Vibration Devices: 6Sets**
**3-Comprehensive Vibration Devices: 6Sets**

- 0.3T * 1Set
- 5T * 3Sets
- 6T * 1Sets
- 12T * 1Sets

# Denkei Minhang Headquater- Vibration/Mechanical Shock Lab-2

| Test Items | Test Item Views |
| --- | --- |
| Mechanical Shock Test | |
| Push-Pull Test | |
| Dropping Test | |

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# Minhang Headquarter –SUGA Lab

| Test Items | Test Item Views | Test Items | Test Item Views |
|---|---|---|---|
| Salt Spray Test(Neutral) Salt-Spray Combines Test(Neutral) | | Hernia lamp Aging Test | |
| | | JIS Standard Dust Test | |
| Colorimeter | | Combined Gas Test | |

**SUGA Labs: 2Rooms**

**Test Devices: 8Sets**

Combined Salt-Spray: 5Sets
Hernia lamp Aging : 1set
JIS DUST: 1set
Combined Gas: 2set

**Large mixed gas test device Size: 1200*800*1200mm**

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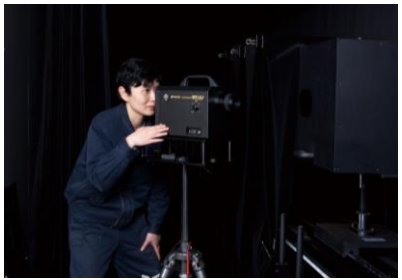
# Minhang Headquarter – Calibration Lab

| Lab | | Calibration Items | |
|---|---|---|---|
| Japan WAVETECH GRAPHTEC, MINATO | | Burn Meter | |
| | | Data Recorder | |
| CNAS Calibration Services | Ability | Digital Multimeter | DC Power& Current |
| | | | AC Power& Current |
| | | | Resistance |
| | | DC Standard Voltage Source | DC Voltage |
| | | Environment Test Devices | Temperature & Humid |
| | | Data Recorder | Temperature & Humid |
| | | Electronic General Testing Machine | Force Value |
| | | DC Standard Current Source | DC Current |
| | | Salt-Spray Test Devices | |

# Denkei Minhang Headquarter – Optics Calibration Lab

Denkei R&D (Shanghai) and TOPCON(Japan) Jointly setup, It is the only Brightness Photometer and illuminometer Calibration Center in Mainland



Brightness Photometer Calibration Range and Standard

| | | |
|---|---|---|
| Brightness Photometer Adjustment Range | 0.005 cd/m2 ~ 40,000 cd/m2 | |
| Brightness Photometer Calibration Standards | Japan | TOPCON Standard |

# Denkei Suzhou Branch –Environment Test

| Test Items | Test Item Views | Test Items | Test Item Views |
|---|---|---|---|
| Vibration Test (Sine、Random、Shock) | | “Temperature/Humid” + 3-Comperhensive Vibration Test | |
| Fast Temperature Change Test | | High/low Temperature/Const.temperature-humid/Alternating hot and humid | |
| Cool and hot shock Test | | Double Arm Drop Test | |
| Falling ball impact test | | Cyclic Composite Salt Spray Test | |

| Environment Test Devices |
|---|
| Environment Temperature 17Sets+Salt-Spray 2Sets |
| Vibration/Mechanical Test Devices |
| Combined Vibration 3Sets+ Drop Shock 2Sets |

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# Cooperation with Japanese Company

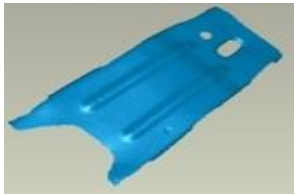
Solve technical problems for Chinese customers through bilateral cooperation

Denkei
TechnicalPartner

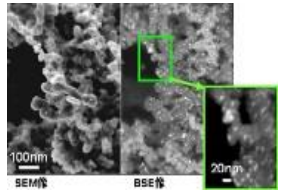
Technical cooperation with Japanese Company

◆ Materiel Analysis

◆ The collapse of the car body



◆ Motor performance and material analysis



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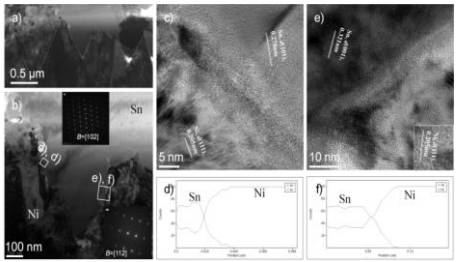
# Failure Analysis- Cooperate with SJTU

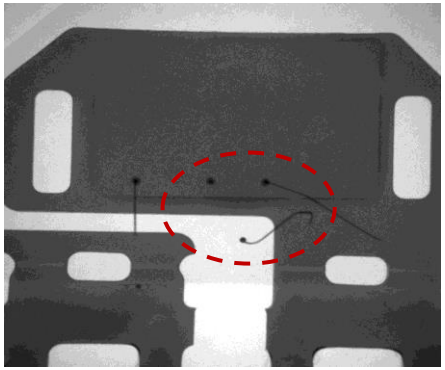
## Test Analysis Projects

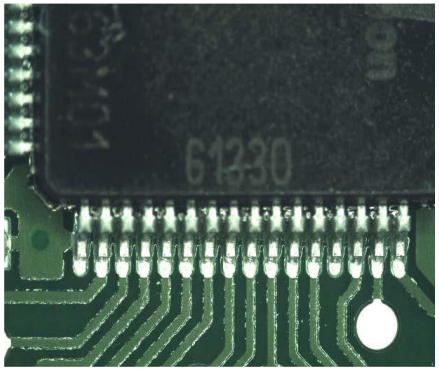
- Spectrum analysis
- Hardness testing
- Metallographic analysis
- Elemental component analysis
- Film thickness test and analysis
- Electronic packaging welding strength test

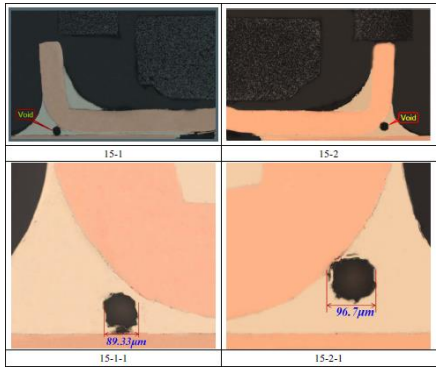



## Devices View:

## Test Sample:





Denkei

# Our Quality Policy

1. Fair play
2. Scientific method
3. Canonical service
4. Sound system
5. Continuous improvement

## *Our Objects:*

For the customer 's TRUST AND RESPECT

- High Quality Service
- Professional Level

# Contact


Market development department

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**Denkei**

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