

**SUH  
MOTORS  
SCIENCE CORP.**

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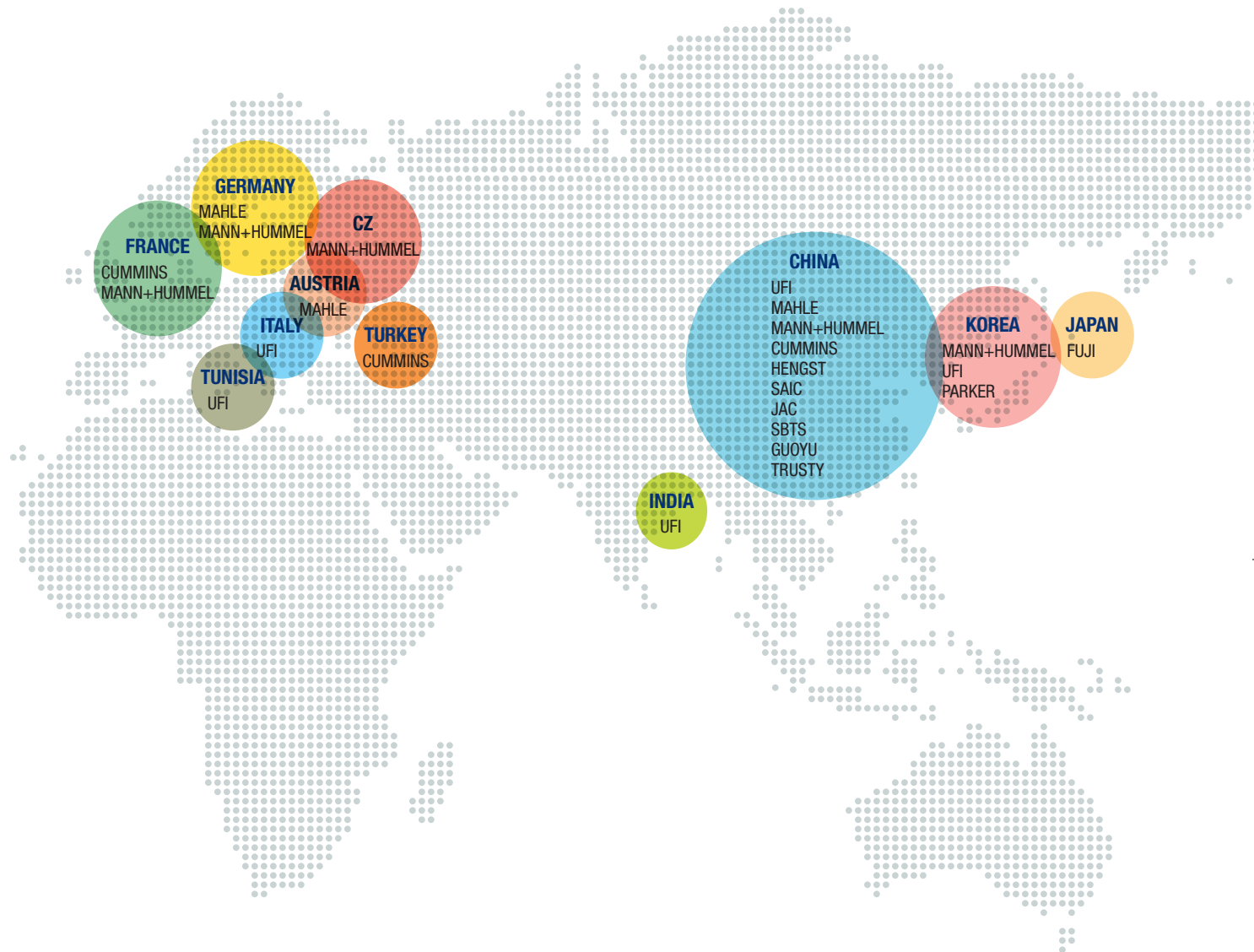
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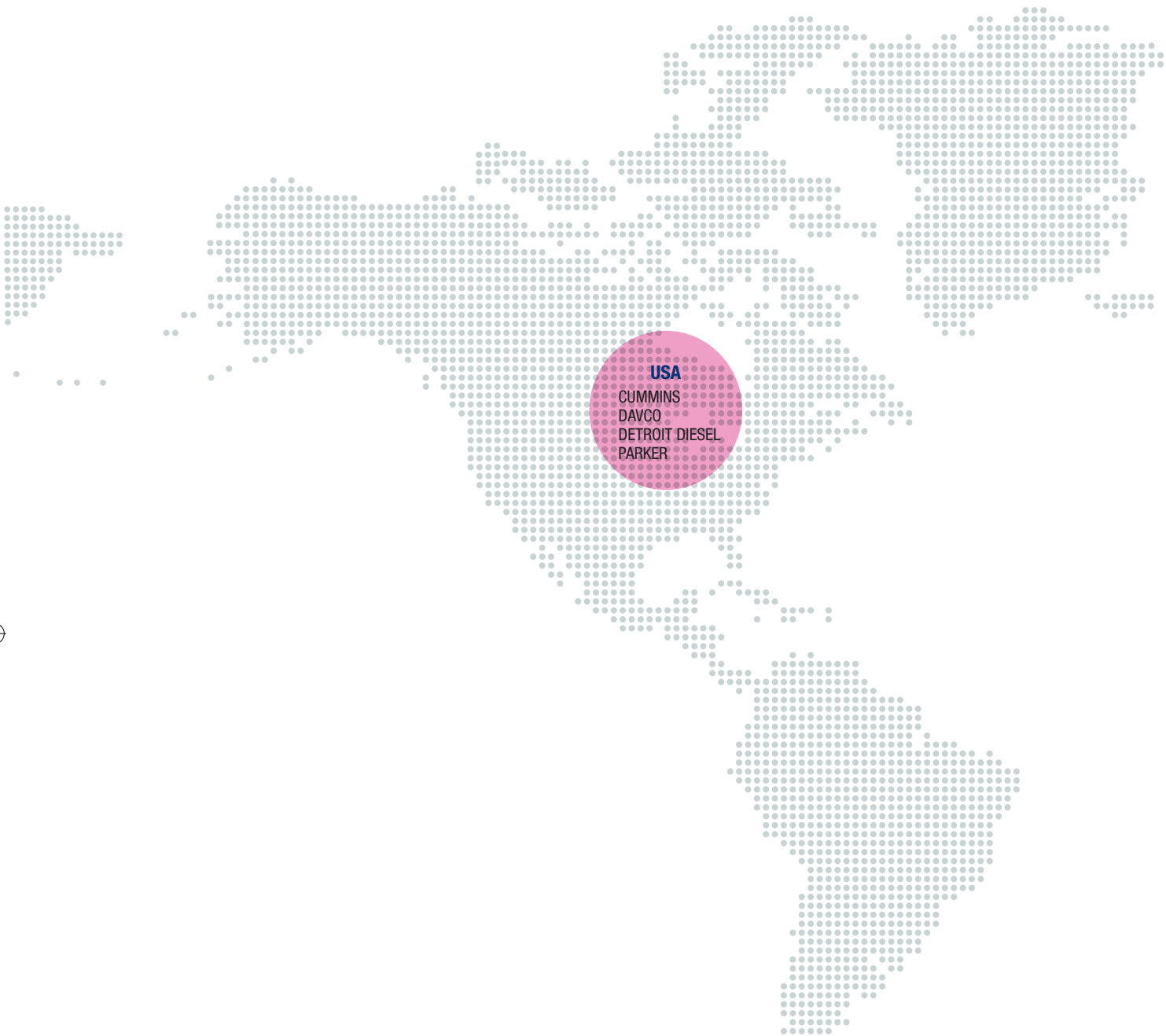
For those who expect a whole new future for automobiles.  
SMS is in the forefront, tirelessly driving forward innovation!

# Direct Customer: Tier 1 supplier



## Final user (Vehicle manufacturers)







# History of SMS

Always a leader in customer values

## 2003~2009

- 2003** DKC Automotive established in China
- 2005** Approved ISO/TS16949 Certificate (TUV)
- 2006** Diesel fuel heater, water sensor supply to UFI
- 2009** Diesel fuel heater supply to MANN+HUMMEL

## 2010~2011

- 2010** Diesel fuel heater supply to Cummins  
Develop a new heater for MAHLE  
Develop an EGR vacuum solenoid valve for SAIC (Shanghai motor)
- 2011** New diesel fuel heater enlargement for current customers





## 2012~2013

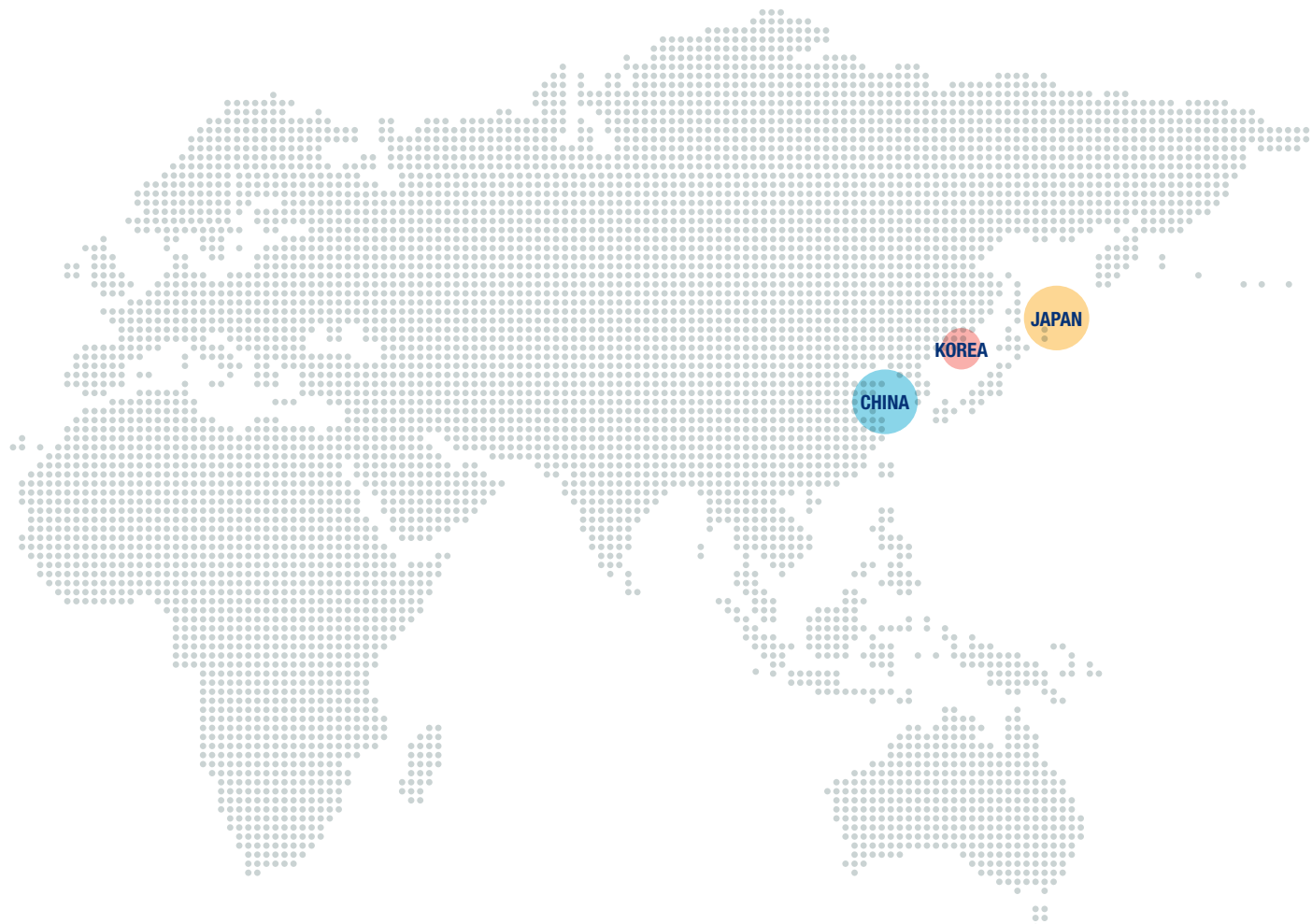
- 2012** Develop a new heater for DAVCO in U.S.A  
Contract for MAP sensor with FEC in Japan
- 2013** Develop an oil drain for MAHLE

## 2014~2015

- 2014** Develop temperature sensor for MANN+HUMMEL  
Develop water sensor for Hengst(Shanghai motor)  
Develop air heater for Trusty  
Start to establish R&D center
- 2015** Develop diesel heater for Parker  
Develop solenoid valve for Detroit diesel



# DKC Group



## Foundation milestones

02, 1990	Established DKC in Korea
10, 1991	Completed the 1 <sup>st</sup> factory
08, 1995	Completed the 2 <sup>nd</sup> factory
12, 2000	Established KDKC Stainless Steel CO. (China)
01, 2001	Founded DKC Singapore PTE LTD.
04, 2003	Established DKC Japan Co. LTD.
08, 2003	Established DKC Europe N.V.
12, 2003	Founded DKCA (China)
12, 2012	Awarded USD958.4 Million (Group total)
04, 2015	Founded DKCA (USA)
04, 2016	Founded SMS





#### KOREA

DKC Head office  
DKCS  
DK D&I  
DK Marine  
SGC  
SMS

#### CHINA

DKCA  
KDKC

#### JAPAN

DKC

#### USA

DKCA

## Main business areas

- Automotive parts
- Stainless/General Steel – Plate, Coil (Heat treatment, Acid cleaning, Cutting)
- Chemical – Fertilizer, Coke, Filler
- Shipping – Fueling on the water, Chemical shipping
- Trading



# Product Introduction

## PTC Heater

All heaters are assembled with PTC resistors. The function of a PTC resistor is to heat diesel in the filter to ensure ignition of diesel vehicles. The heaters can detect the diesel temperature and automatically turn on or off by thermo-switch or PCBA.

### Diesel fuel filter assembly



## Heater(P.T.C)+Thermostat(Mechanical : Bi-metal)



## Heater(P.T.C)+Thermostat(Electrical : PCBA)



## Heater(P.T.C)+Temperature sensor(N.T.C)+Pressure switch+Water sensor



# Product Introduction

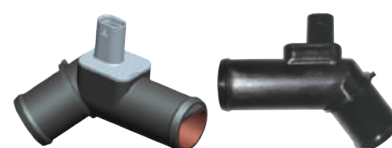
## Solenoid Valve

Solenoid converts electric energy to mechanical energy and can be used in many applications to control the systems by means of controlling mechanical force, fluid pressure, and flow rate.

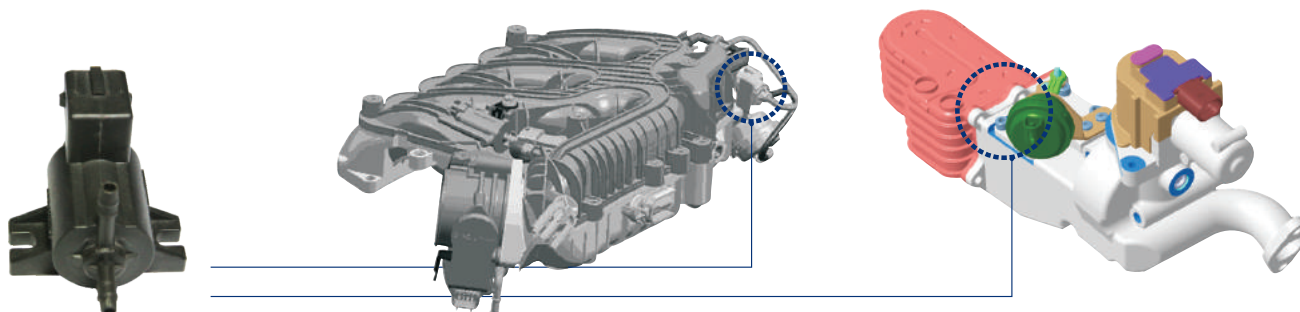
### Oil drain valve



### Air heater



## Solenoid valve for EGR cooler system



## Pressure sensor for DPF system



## Temperature sensor for EGR & DPF system



# Product Introduction

## Map sensor

Map sensors can detect the pressure change in intake manifold and give signals to ECU



## Fuel sensor

### Temperature sensor



## Water sensor



## Pressure sensor

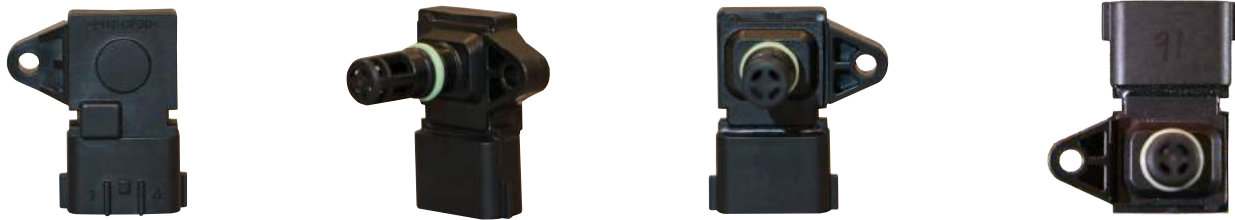




# Product Introduction

## Pressure sensor

### T-MAP



### Air-conditioning pressure sensor



### Pump pressure sensor



### DPF pressure sensor



### LPG pressure sensor

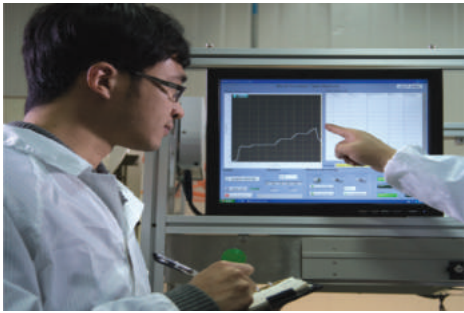
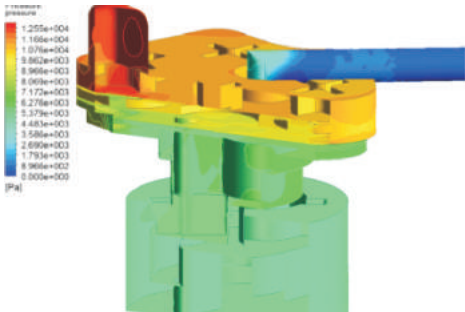


### Industrial pressure sensor



# R&D

In order to meet customers' needs such as quality, price, and development in time, SMS has been focusing on R&D to ensure quality at every stage, from design to FMEA to collaboration with customers.



With its own laboratory and research equipment, SMS verifies all validation tests, excepting EMC tests, and performs reliability tests for regulation.



**DKCA has 6 patents and continues to develop technology.**

Items	Diesel Heater	Pressure Temperature Switch WIF Sensor	Solenoid Valve	Simulation Flow Testing Machine	Total
Awarded	5	3	3	1	12

# Production Line

## Semi-automatic production line



## ESD protected production line



## Dust-free workshop :

DKCA builds dust-free workshops to meet our customers' cleanliness requirement.





# Quality

## Quality policy : Do it better

To prioritize and continue improving product quality and satisfying customers' requirements.



TS 16949 Certification

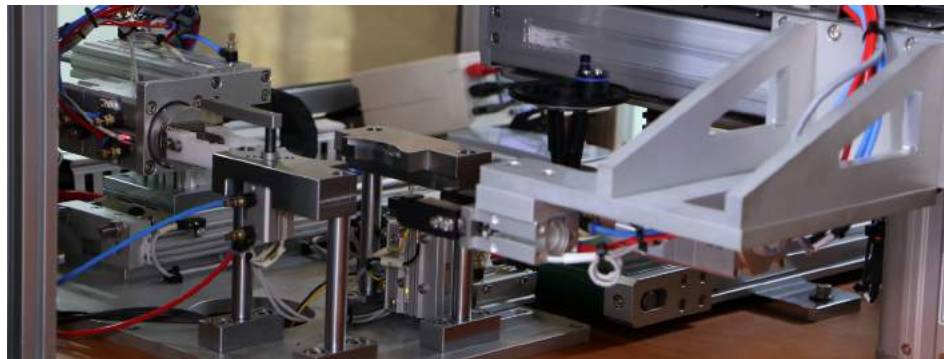
## Measurement machine & Endurance tester



CMM



Profile projection



Roughness Gauge/Humidity detector



Profile meter



2.5D Machine

Endurance Tester	Vibration tester	Rain tester	Salt spray tester	Thermal shock tester (2zone)	Thermal shock tester (3zone)	Constant temperature & humidity testing chamber	PTC heater distinctive tester	Dynamic pressure tester	High temperature chamber
Quantity	1	1	1	1	1	2	1	1	2



# Quality Improvement

## Sources of competitiveness and pride for SMS :

Continuous effort to research and develop high-quality products.

Human resources of the highest quality.

A can-do spirit that never fears failure.

Creativity and passion for customer satisfaction.



To improve product quality, improve productivity, reduce scrap rate, and satisfy our customers, SMS' entire staff participates in improvement of quality. Our customers join the improvement process as well!

SMS

SUH MOTORS SCIENCE CORP.



