

# **SOOK Automotive Components(JiangSu) Co.,Ltd**

## **首凯汽车零部件（江苏）有限公司**





The company was established at the name of SOOK Automotive Components (Jiangsu) Co.,Ltd in Gaoyou ,Jiangsu on Feb.2015.Has won High-tech enterprise, National science and technology small and medium-sized enterprise, Software enterprise, Member of China Machinery Industry Standardization Technology Association, Council Members of Sensor and IoT Industry Association, Council Members of China Instrument Industry Association Sensor Branch and Council Members of Jiangsu Import and Export Chamber of Commerce. Specializing in the research and development of intelligent vehicle exhaust temperature sensor, intelligent NOX sensor, NH3 sensor, H2 sensor and speed sensor, design, production, sales and integration. Has an annual production capacity of 600,000 sensors of various types. There are more than 2,000 items of exhaust temperature sensor, 450 items of NOx sensor, and 1,300 items of ABS sensor , which are exported to Europe and the United States.







The company's management and technical team consists of several well-known automotive sensor and control system experts in the automotive field. The main members of the R&D center are 22 people, including 9 doctors, 3 senior engineer and 5 engineers. The team has long been engaged in the development and design of vehicle-mounted intelligent temperature sensors. Have professional technical foundation in component preparation, software and hardware design.

# Development Path

- In Jan. 2021, obtained 2020 Jiangsu Provincial Specialized, Special and New Software Enterprise Cultivation Library Enterprise.
- In Jan. 2021, Passed the environmental certification system GB/T 24001-2016/ISO 14001:2015.
- In March 2021, obtained the first batch of national-level technology-based small and medium-sized enterprises.
- In Aug.2021, has won the third prize of 2021 "China Machinery Industry Science and Technology Award"
- In Sep.2021, the group standard of "Exhaust Temperature Sensor for Internal Combustion Engine" led by SOOK was released and implemented. Standard No.: T/CAMS/CICEIA 66-2021

- In Jan 2020, obtained the Ministry of Commerce's credit certification enterprise
- In July 2020, won the second prize of the Yangzhou Division of the Jiangsu Internet Innovation and Entrepreneurship Competition.
- In Oct. 2020, it was awarded: China Sensor and Internet of Things Industry Alliance SIA Perception Pilot Excellent Project "Nomination for Outstanding Projects of Technological Progress"
- In Nov.2020, obtained Council Members of Sensor and IoT Industry Association
- In Dec.2020,has won 2020 Jiangsu Science and Technology Innovation Association Second Prize for Transformation of Scientific and Technological Innovation Achievements.

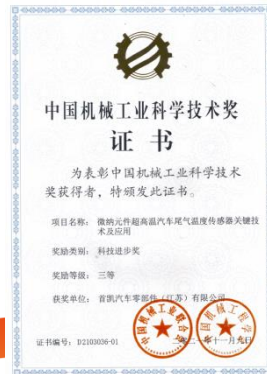
- In July 2019, the intellectual property management system certification review passed;
- In October 2019, the key research and development plan industry passed the acceptance;
- In November 2019, Yangzhou Engineering Technology Center passed the accreditation review;
- In December 2019, won the special funding for the transformation of scientific and technological achievements of Gaoyou City;
- In December 2019, the first software product review in key areas of Jiangsu Province was promoted.

- In the June of 2015,the company was relocated to Jiangsu Gaoyou and won the Gaoyou Science and Technology Progress Award in the same year.

- In 2016,the key research and development plan of Jiangsu Province (industry foresight and common key technologies) is proposed for project publicity.

- In 2017,cooperated with the Chinese Academy of Sciences and established Zhongke Limin New Materials (Yangzhou) Co., Ltd and won the Gaoyou Science and Technology Progress Award in the same year.

- In March 2018, the angel (talent) special fund project was obtained;
- Funded by the "Popular Innovation Talents" Entrepreneurship Project in Jiangsu Province in 2018;
- On-site assessment by the expert group in November 2018 Approved by the "Green Yang Goldwind".
- In November 2018, elected as the governing unit of the 7th Council of the Sensor Branch of China Instrument and Meter Industry Association.



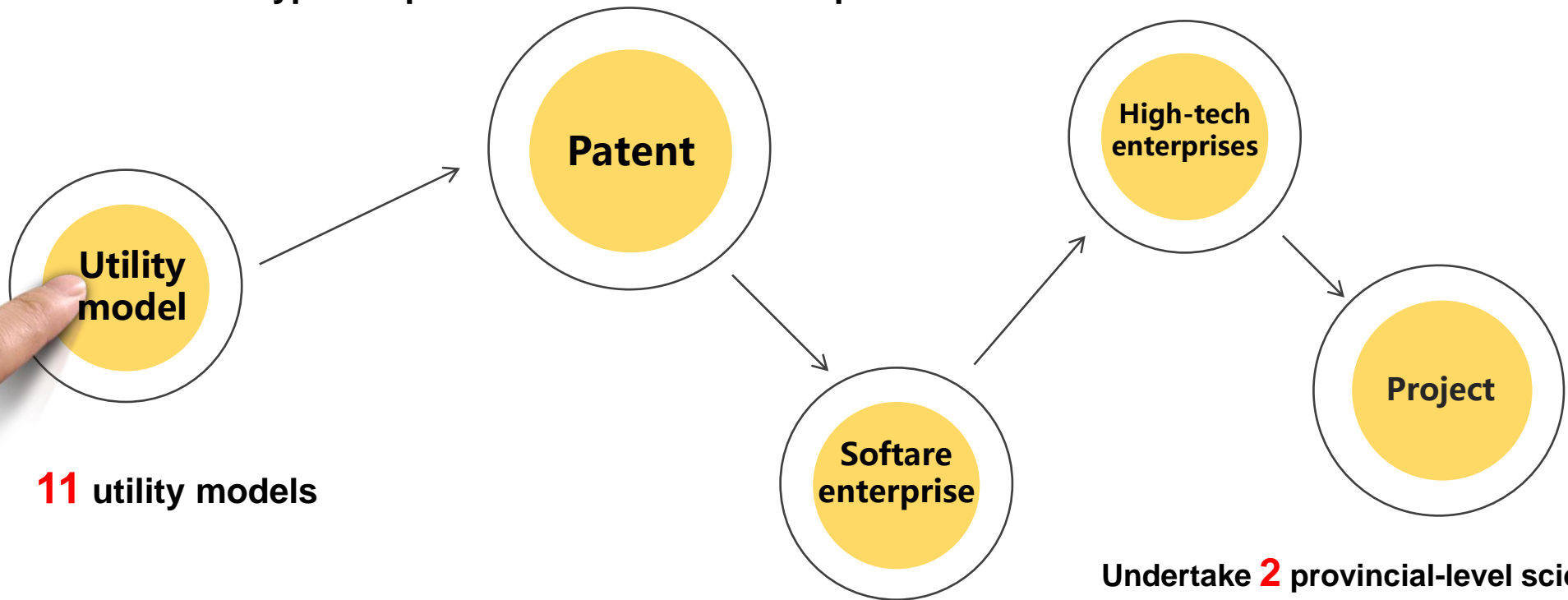
**1** US PCT authorized, **1** UK PCT authorized

**5** invention patents,

**6** invention patents are in the process of administration.

**2** types of products obtain software products

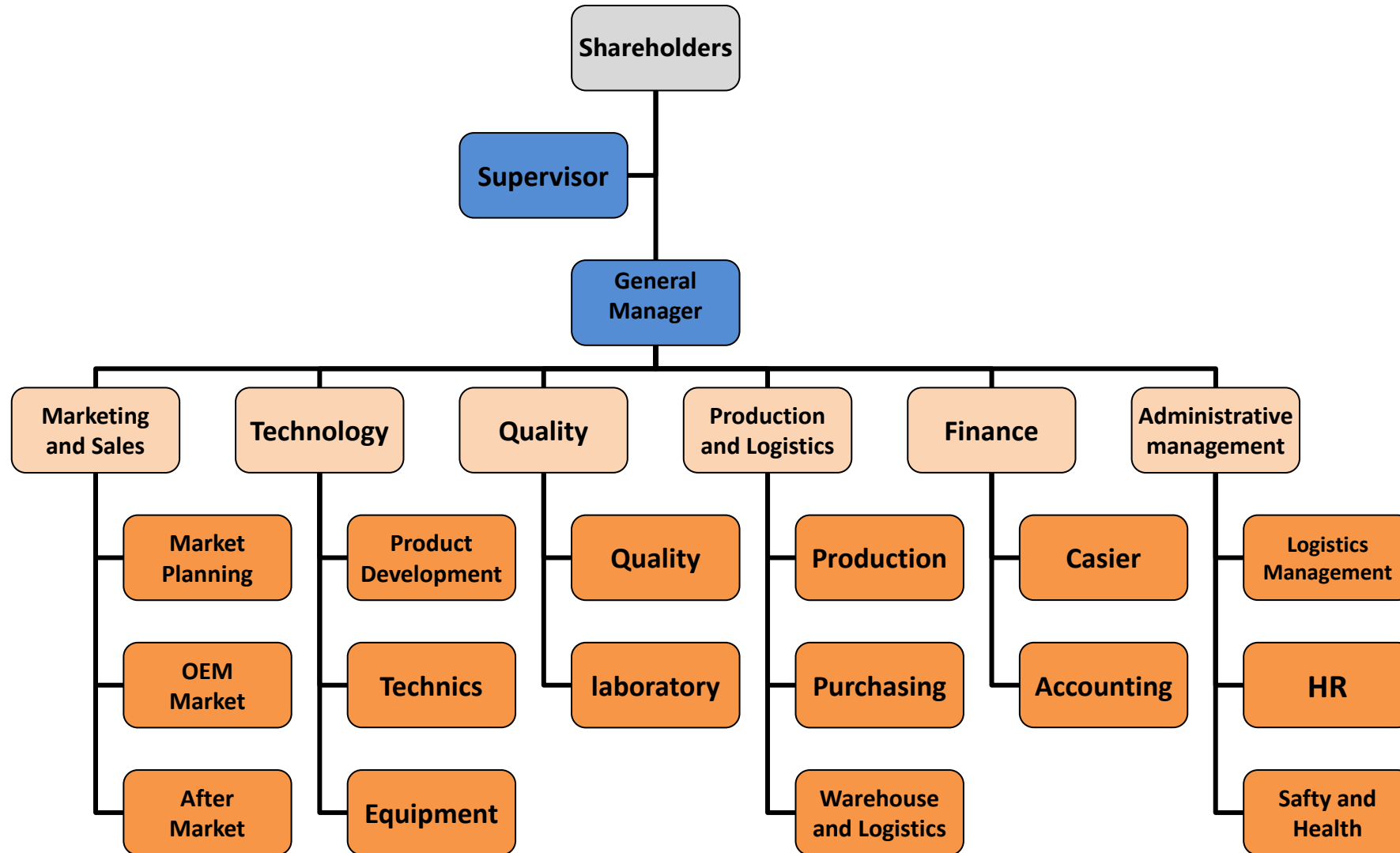
**4** high-tech products



**11** utility models

**8** types of products to obtain software copyright

Undertake **2** provincial-level scientific research project, **4** municipal-level projects and **2** talent projects







Automated production line1



Automated production line 2



Vertical injection molding machine



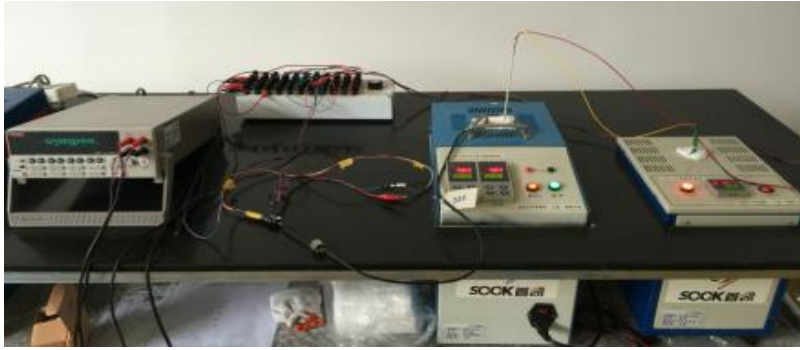
Electric spark forming machine



Automatic pipe cutting machine



# Testing Equipment



High temperature dry trap temperature calibration furnace and zero temperature thermostat



Low temperature oil tank test bench



Single temperature zone open vacuum tube furnace



Motor vehicle emission detection system

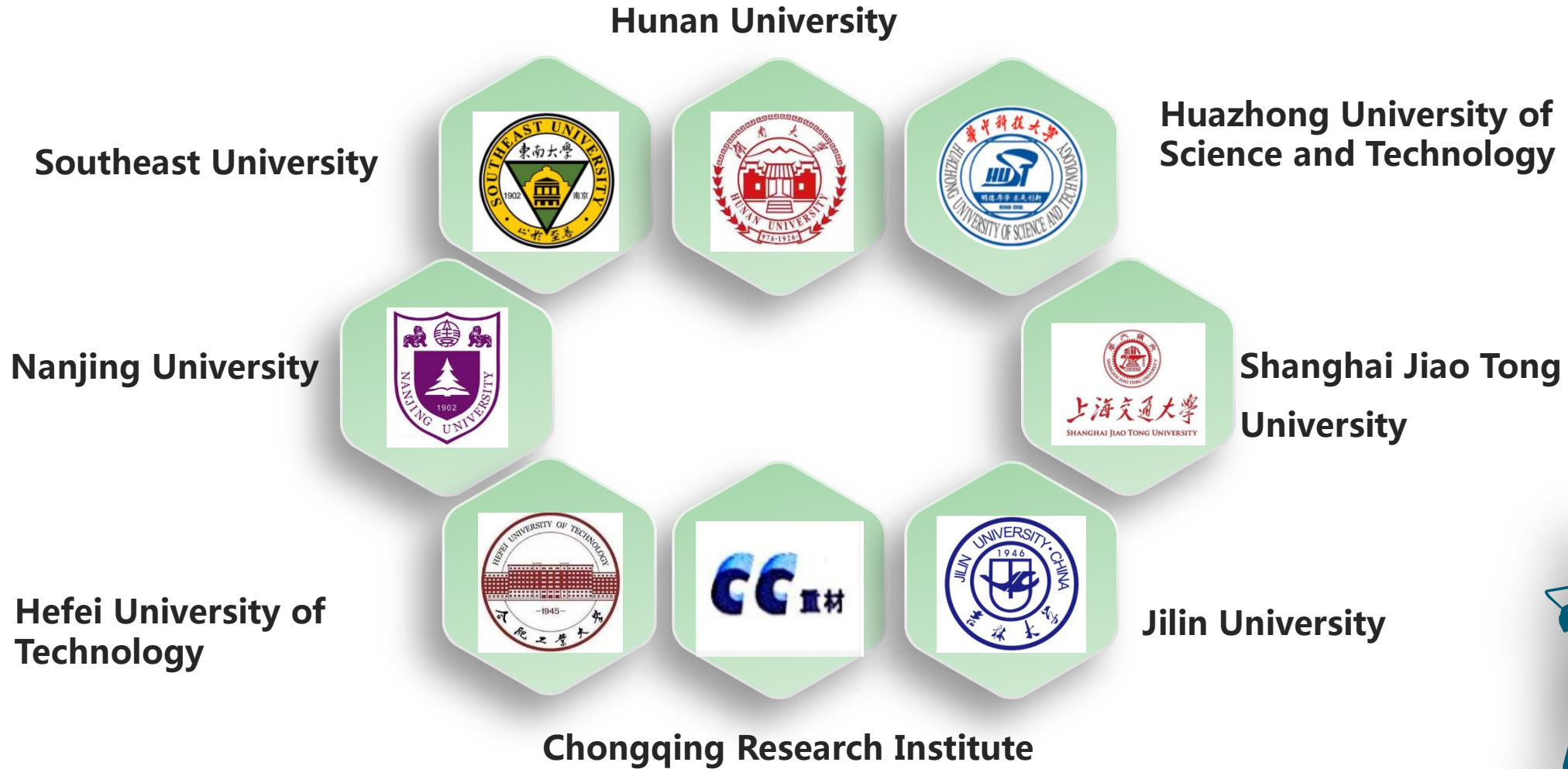


Box type high temperature furnace



Debinding Sintering Furnace

■ In order to ensure the quality of the products, SOOK specially equipped with a number of test devices for simulating automobile exhaust emissions, and built corresponding test circuits to simulate the atmosphere environment of vehicle exhaust emissions to grasp the changes of product parameters during the experiment.





**IATF certificate** ➤



◀ **E-mark certificate**



◀ **ISO 14001:2015 certificate**

■ We passed the IATF 16949:2016 system certification.

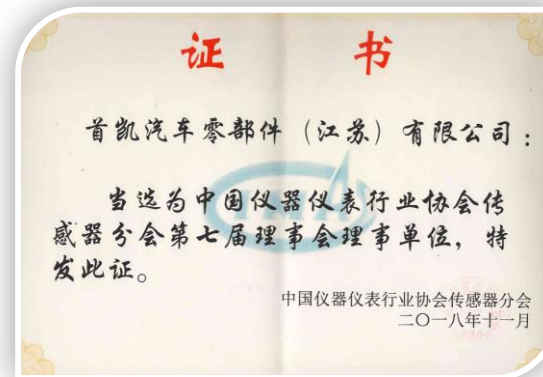




High-tech Enterprise Certificate



Software enterprise certificate



Honor certificate



Private enterprises in Jiangsu Province



Jiangsu Province Science and Technology SME Certificate



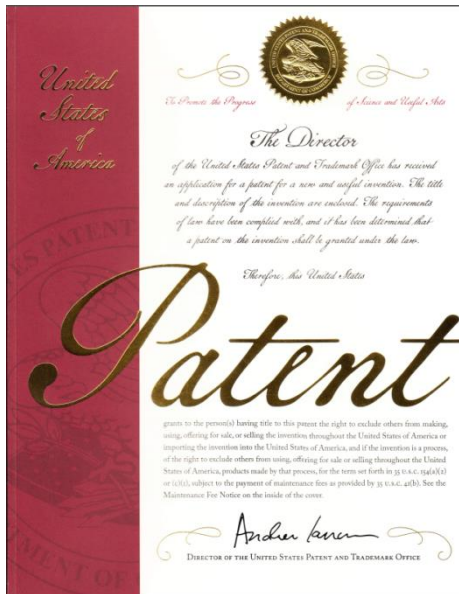
Honor certificate



Honor certificate



National Quality Trustworthy Enterprise



Obtained **2** PCT international patent , **5** invention patents, and **11** utility model patents.



**EGT sensor 2000+ items**



**Nox sensor 450 + items**



**ABS sensor 1300+ items**



**Crankshaft position sensor  
200+ items**



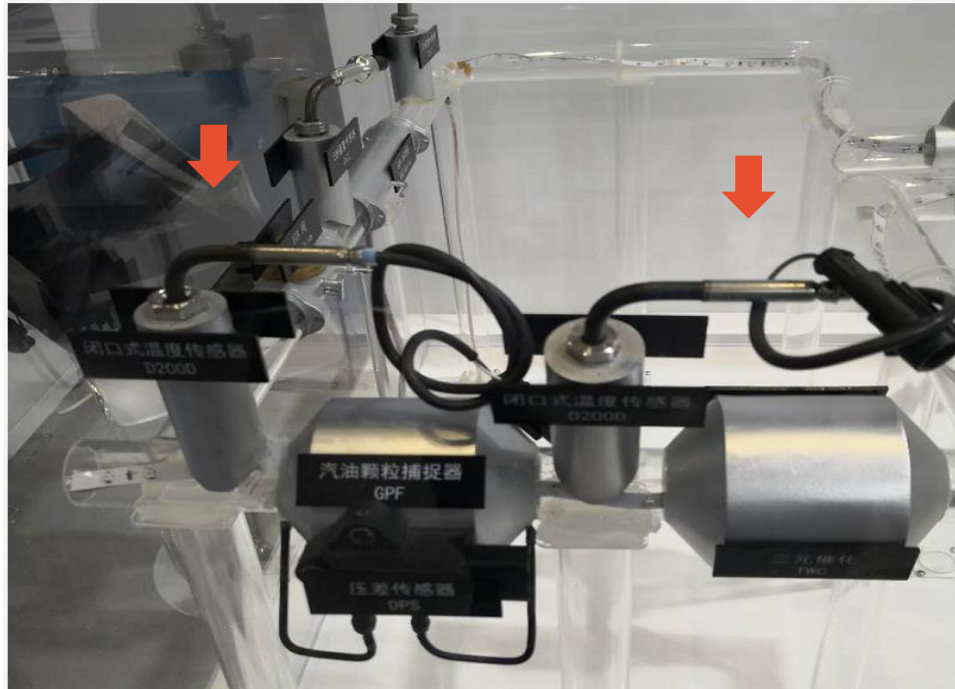
**Brake Pad Sensor 270+ items**



**Camshaft position sensor  
200+ items**



## Exhaust Gas Temperature Sensor



The automobile exhaust temperature sensor developed by SOOK broke the Japanese technology monopoly in this field, formed China's independent intellectual property rights and realized its application in the energy-saving and environmentally-friendly automobile industry.

Two of the samples, **SKT-131** and **SKT-788**, were tested by the laboratory of the German Wika Automation Instrumentation (Suzhou) Co., Ltd., and the electrical performance index reached the Japanese Denso product index, which is no different from the Japanese Denso product quality and the price is lower.



WIKAL JACERA CNAS 中国认可 国际互认 CALIBRATION CNAS L3471 第1页 共3页 Page 1 of 3

Wika Instrumentation (Suzhou) Co., Ltd. Calibration Laboratory

### 校准证书 Calibration Certificate

证书编号: WZ018073101 Certificate No.

委托单位: 江苏海陵经济开发区 (海陵) 有限公司 Customer

委托单位地址: 江苏省海陵经济开发区 (海陵) 有限公司中心内 A2楼 Customer address

测量器具名称: 热电阻 Object

型号规格: SKT-788 Type/Specification

出厂编号: R2018073101 Serial No.

制造商: SOOK Manufacturer

准确度等级: 1 Accuracy Class

校准日期: 2018年7月31日 Date of Calibration

校准员: 陈海星 Calibration by

检查员: 孙小松 Checked by

批准: 李海峰 Approved by

日期: 2018年7月31日 Date

地址: 江苏省海陵经济开发区 (海陵) 有限公司中心内 A2楼 Address

电话: 0513-88555555 Tel

传真: 0513-88555555 Fax

WIKAL JACERA CNAS 中国认可 国际互认 CALIBRATION CNAS L3471 第1页 共3页 Page 1 of 3

Wika Instrumentation (Suzhou) Co., Ltd. Calibration Laboratory

### 校准证书 Calibration Certificate

证书编号: WZ018073102 Certificate No.

委托单位: 江苏海陵经济开发区 (海陵) 有限公司 Customer

委托单位地址: 江苏省海陵经济开发区 (海陵) 有限公司中心内 A2楼 Customer address

测量器具名称: 热电阻 Object

型号规格: SKT-131 Type/Specification

出厂编号: R2018073102 Serial No.

制造商: SOOK Manufacturer

准确度等级: 1 Accuracy Class

校准日期: 2018年7月31日 Date of Calibration

校准员: 陈海星 Calibration by

检查员: 孙小松 Checked by

批准: 李海峰 Approved by

日期: 2018年7月31日 Date

地址: 江苏省海陵经济开发区 (海陵) 有限公司中心内 A2楼 Address

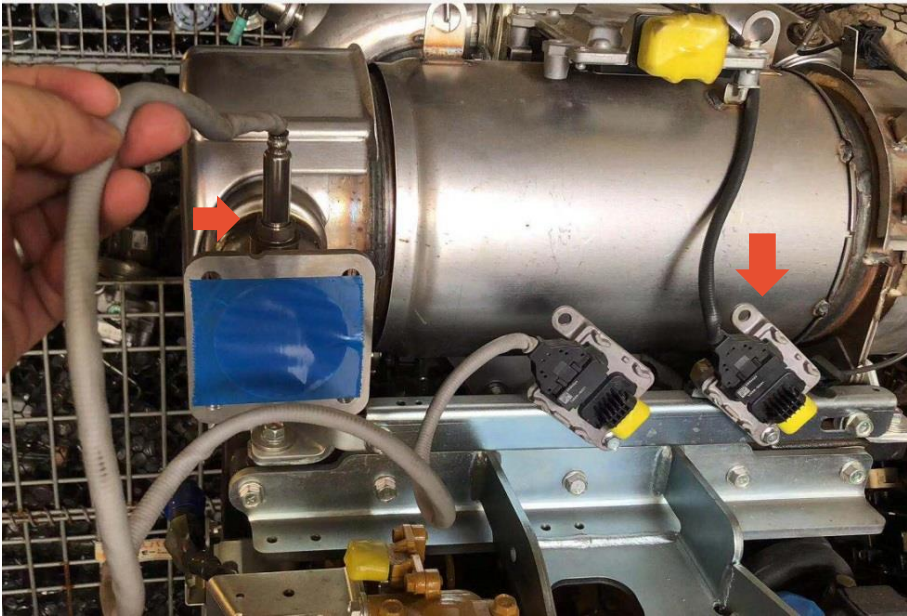
电话: 0513-88555555 Tel

传真: 0513-88555555 Fax

## NOX Sensor

■ SOOK NOx sensor can detect and evaluate the nitrogen and oxygen concentration of the exhaust gas from the engine in real time. Once the exhaust gas is found to be out of compliance, it can respond quickly and accurately.

1. Meet the national, national, and national six emission standards;
2. It can be used for the detection of nitrogen oxides of various brands at home and abroad such as Weichai, Yuchai, Cummins, Volvo;
3. Provide a variety of plug-in models and cable lengths to meet different usage requirements.

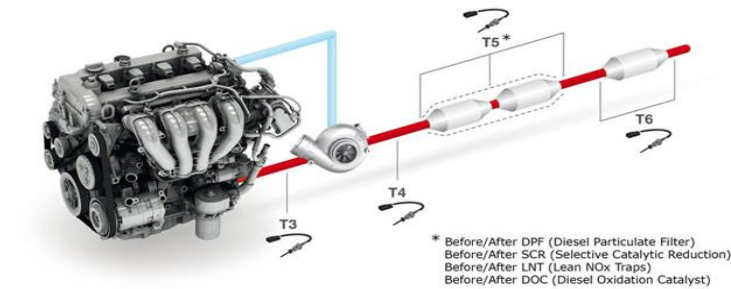


■ The software programs and ceramic chips involved in the NOx sensor have very high requirements for technical research and development capabilities. Previously, the R&D and production technology of this sensor has been monopolized by foreign companies. SOOK is immersed in innovation, overcomes the difficulties of nitrogen-oxygen sensors, breaks the monopoly in one fell swoop, and fills the gap in the domestic nitrogen-oxygen sensor industry.

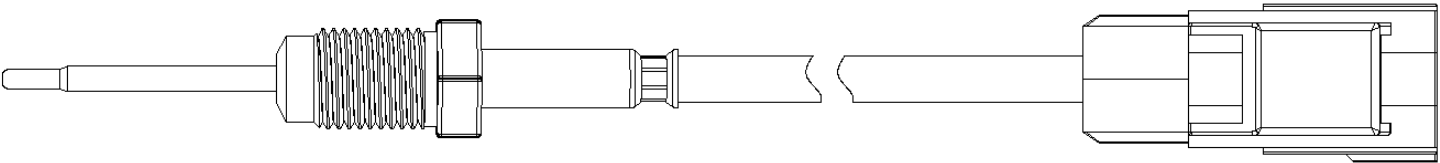


# Exhaust Gas Temperature Sensor(NTC Sensor)

Installation positions



T3 - Before turbocharger  
T4 - Before diesel oxidation catalytic converter  
T5 - Before/after diesel particulate filter  
T6 - Before/after 3-way catalytic converter

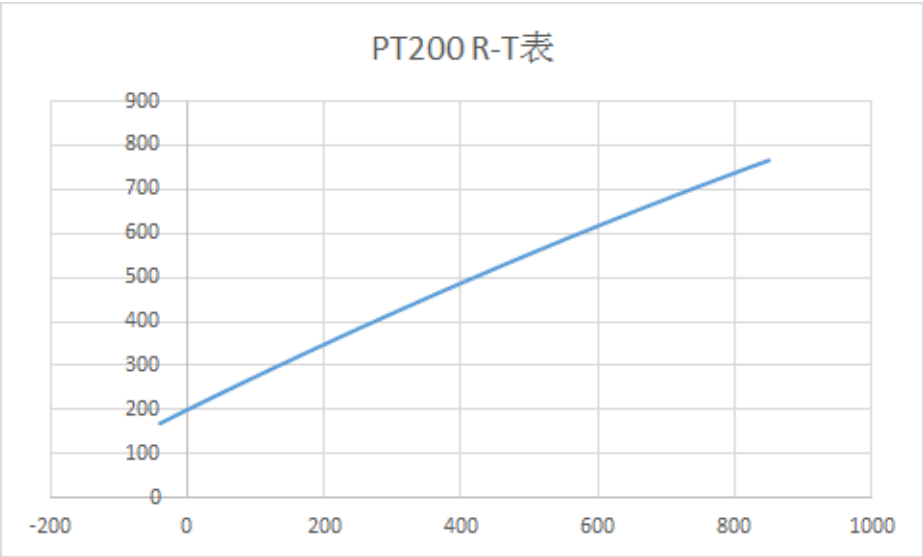


温度&阻值对照表

温度 ℃	温度误差 ℃	阻值(Ω)		
		最小阻值	平均阻值	最大阻值
25	±5	-	4500000	-
50	±10	-	1800000	-
100	±10	-	370000	-
200	±10	-	28040	-
250	±10	-	11530	-
300	±10	-	5463	-
350	±10	-	2840	-
400	±10	-	1682	-
450 *	±10	-	1026	-
500	±10	-	690.9	-
550	±20	-	485.6	-
600	±20	-	350.4	-
650 *	±20	-	274.3	-
700	±20	-	212.8	-
750	±20	-	168.1	-
800	±20	-	134.9	-

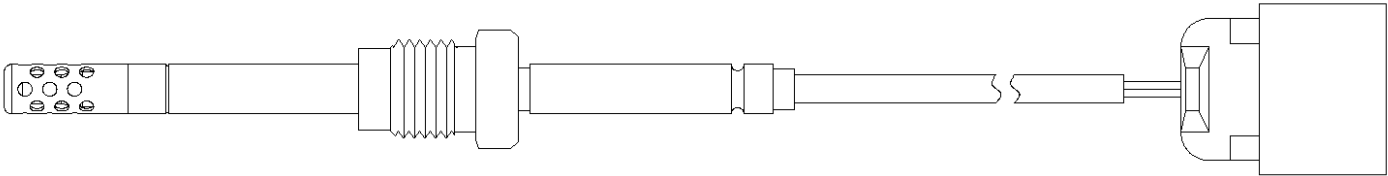


# Exhaust Gas Temperature Sensor(PTC Sensor)



RT table

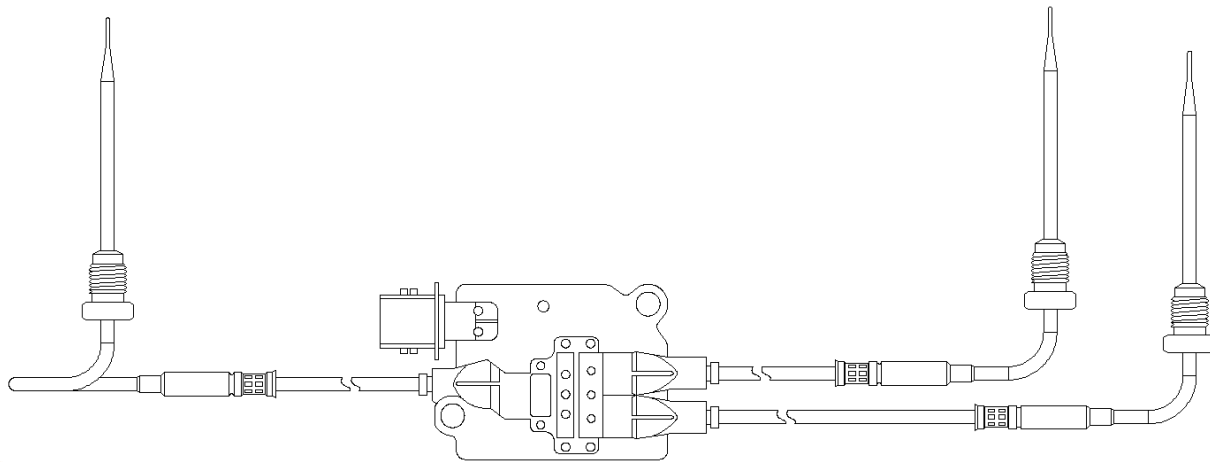
T(°C)	Rs(Ω)	U0(V)
-40	170.2	0.727
-20	185.6	0.783
0	201.0	0.837
25	220.1	0.902
50	239.0	0.964
100	276.4	1.083
150	313.2	1.193
200	349.5	1.295
250	385.1	1.390
300	420.2	1.479
350	454.7	1.563
400	488.6	1.641
450	521.9	1.715
500	554.6	1.784
600	618.3	1.910
700	679.7	2.023
800	738.7	2.124
900	795.4	2.215
1000	849.7	2.297



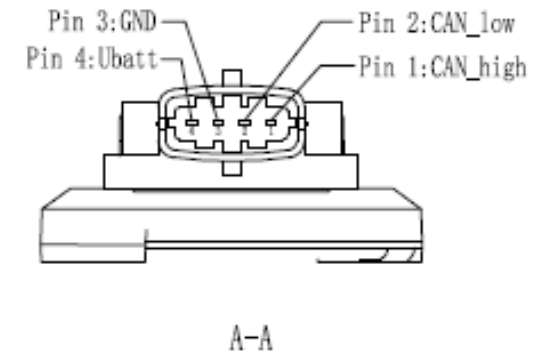
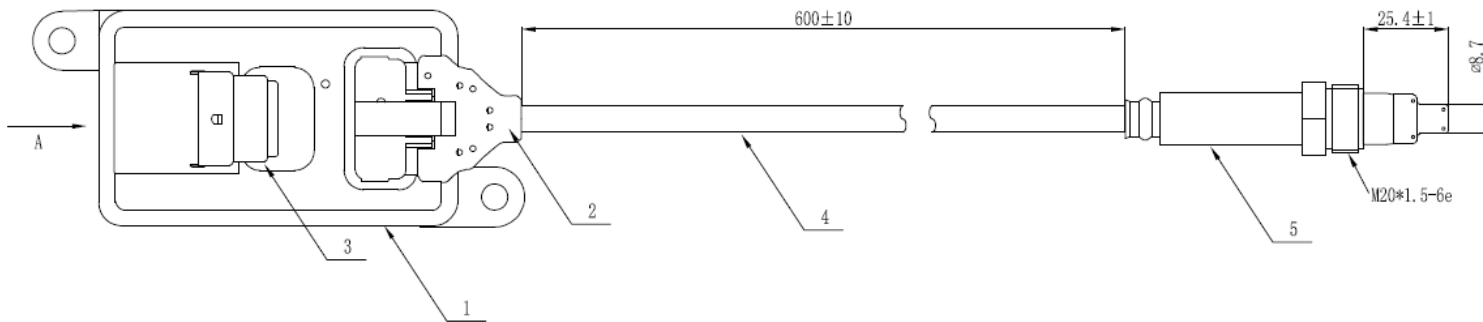
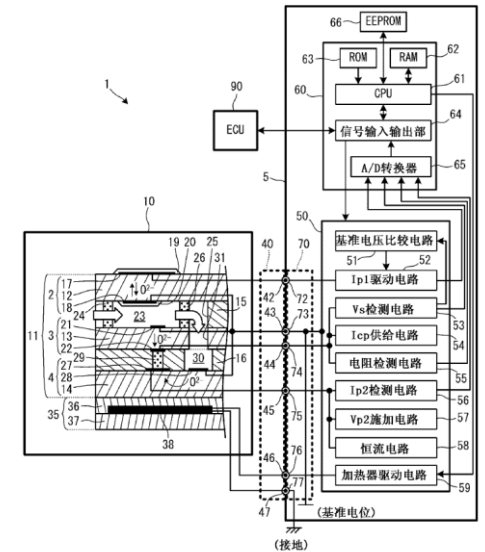
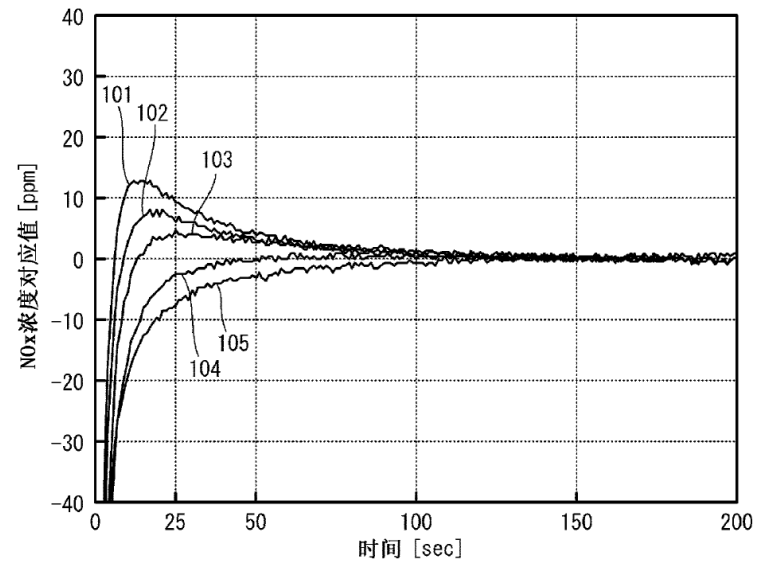
# Exhaust Gas Temperature Sensor(Thermocouple Sensor)



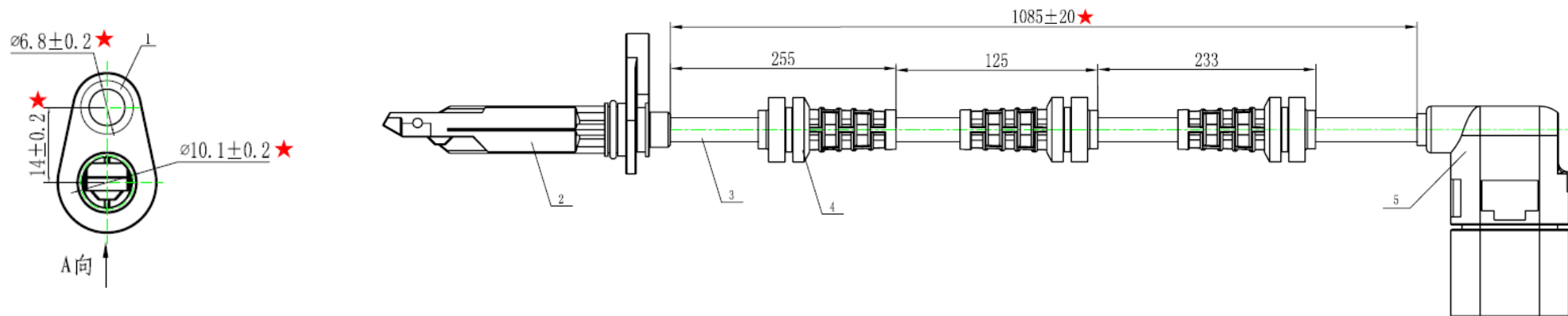
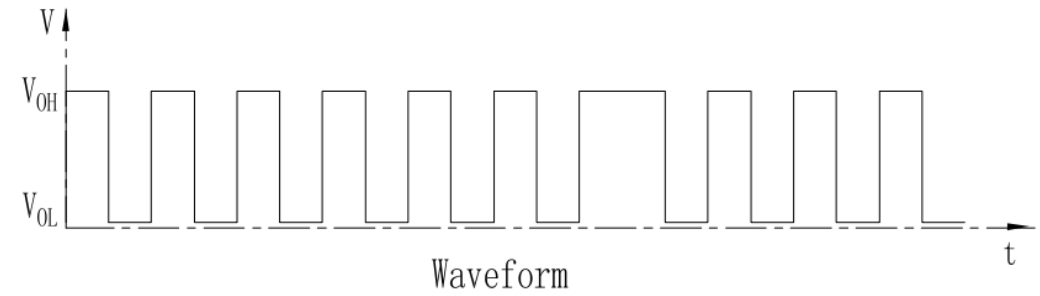
Response time	7s @10 m/s (4s @20 m/s)
Sensing temperature	- 40 °C to 850 °C
Working temp. electronics	- 40 °C to 140 °C
Cable temperature capability	250 °C
Accuracy	- 40 °C to 650 °C : ± 5 °C 650 °C to 850 °C : ± 10 °C over lifetime
Supply Voltage	(Vs) 24 V or 12 V
Connector	Tyco HDSCS 4PIN 2.8 connector PN 1-1418390-1 code A
Output	CAN (protocol according to SAE J1939)



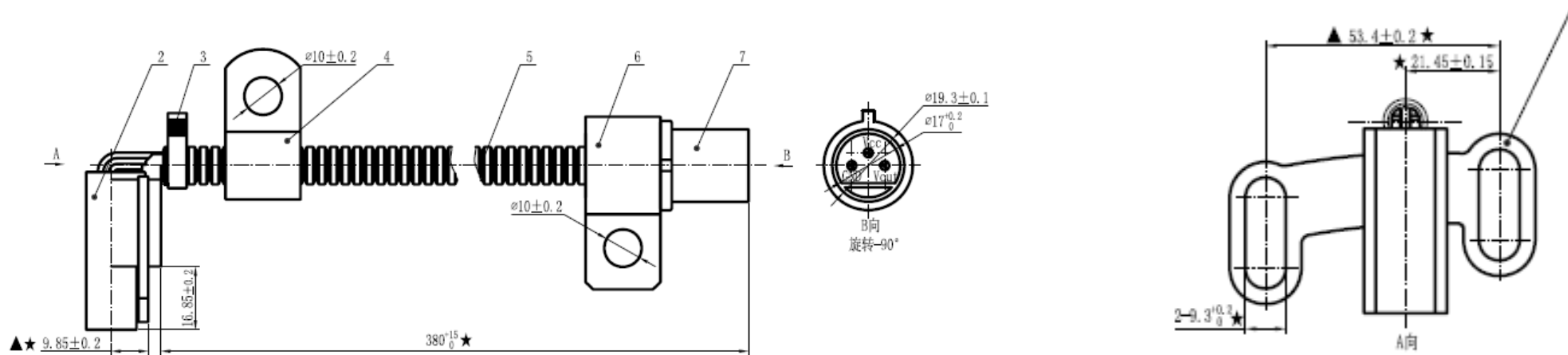
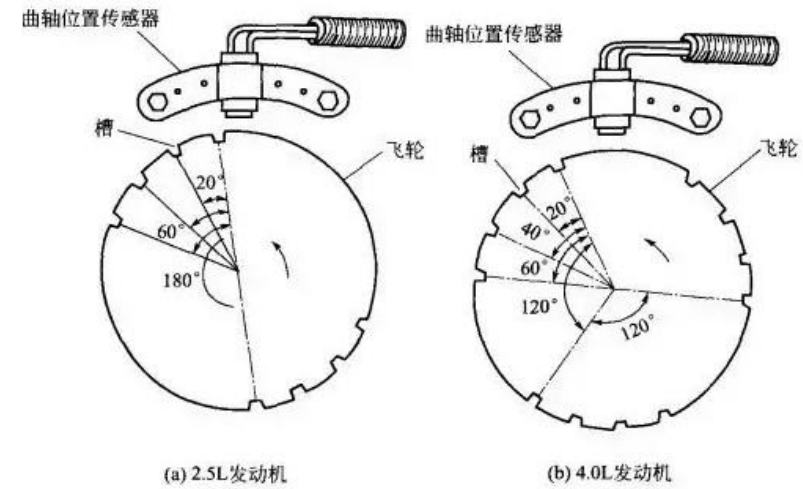
# NOX Sensor



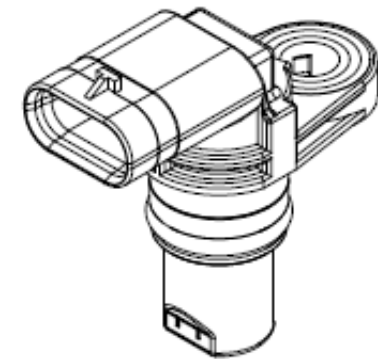
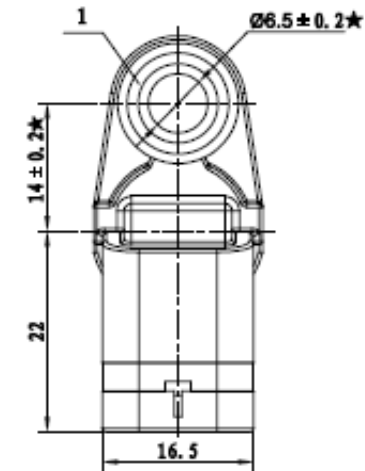
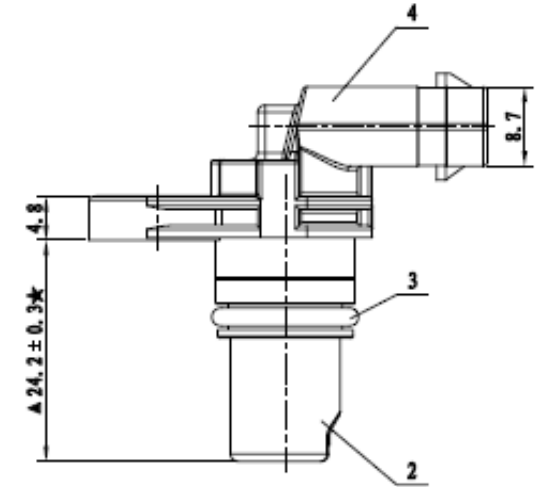
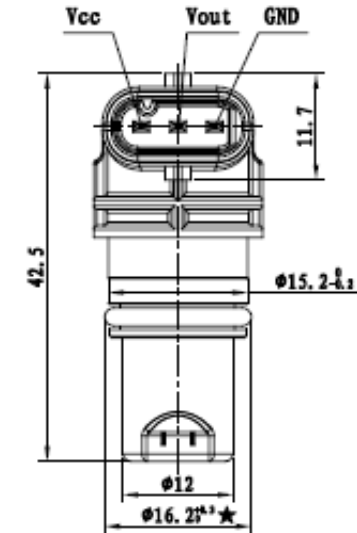




# Crankshaft Position Sensor

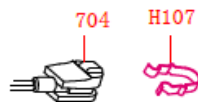
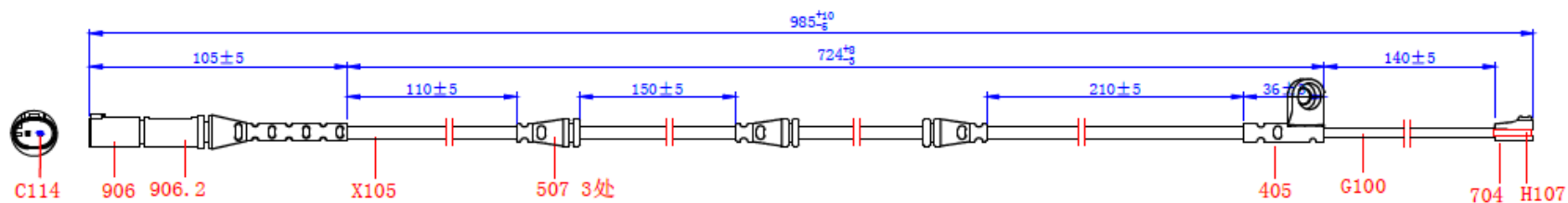


# Camshaft Position Sensor





# Brake Pad Sensor



# Application Field



Road vehicle

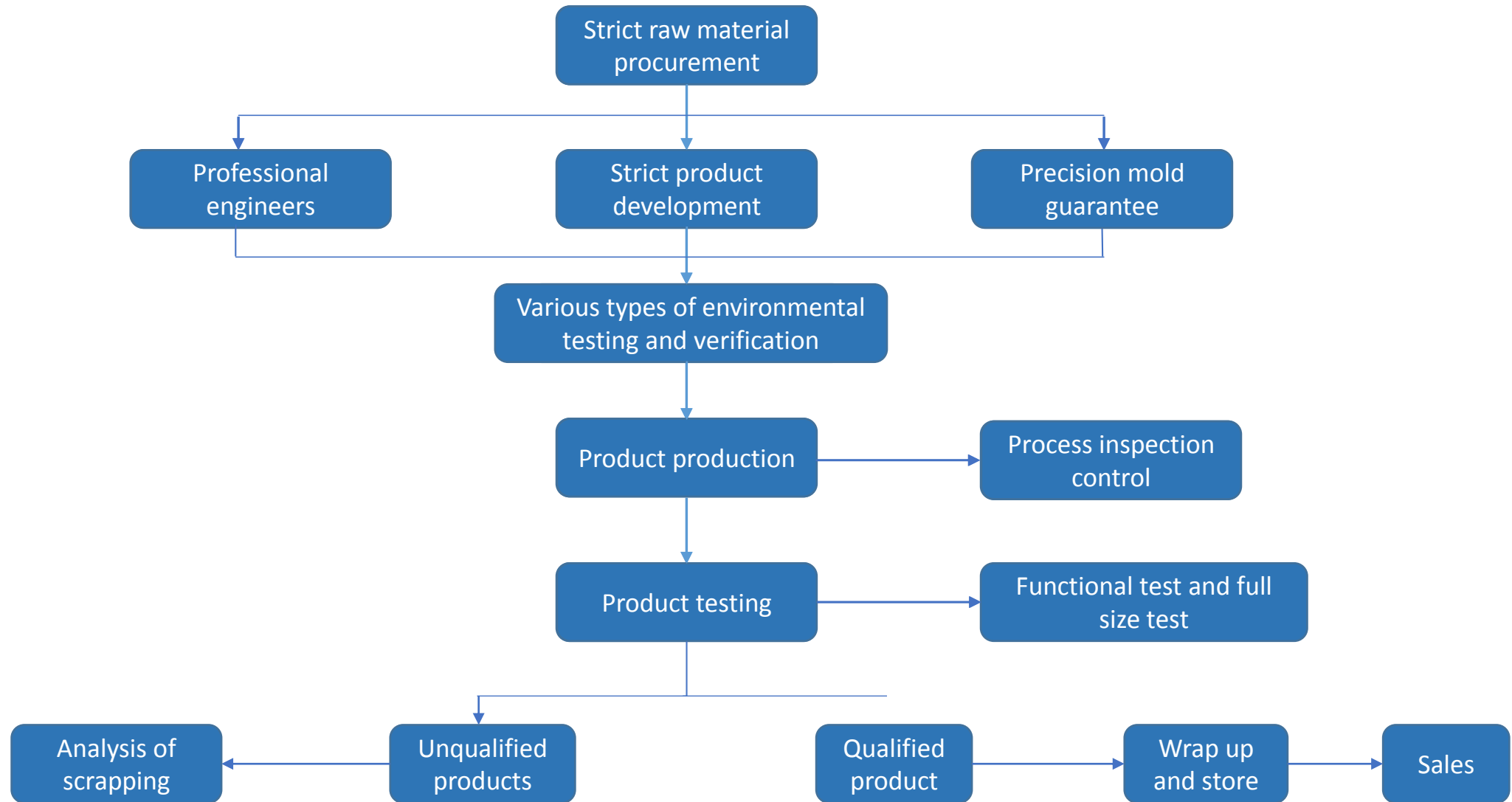


Ship



Off-road vehicle







# International Exhibition

**We participate in more than 10 exhibitions around the world every year.**

- April ,Automechanika Istanbul
- April , Automec Brazil
- June , SENSOR+TEST Nuremberg
- July ,Automechanika Mexico
- October ,Equip Auto Paris
- November, AAPEX Las Vegas
- December , Automechanika Shanghai



**Exhibition**



With the continuous improvement of product and service quality, the sales area of SOOK products has also been expanding, and the market position has been rapidly improved. The products are exported to Europe, North America, South America, Middle East, Africa and other countries and regions.





■ Continue to increase the independent research and development of new products and development.

■ With years of experience in designing products to meet stringent environmental conditions and high quality requirements.

■ Continuous improvement in market, R&D, production, etc., analysis of existing problems, and specific measures.

■ Optimize the quality of existing products, track trial products, and improve technical progress and product quality standards.

■ Established the first domestic R&D and manufacturing center for automotive exhaust temperature sensors. In 3-5 years, the company will be established as a “National Automobile Exhaust Temperature Sensor R&D Center” with completely independent intellectual property rights.

