



# Products Introduction of Huasder



Huasder Electronic Technology (Kunshan) Co., Ltd.

# Products in Production



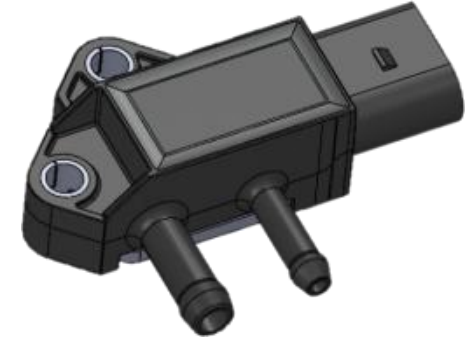
Exhaust Gas Temperature  
Sensor(pt200)

Temperature sensor is made of platinum heat sensitive resistor (PT200), resistance increases with the increase of temperature.



Exhaust Gas Temperature  
Sensor(Thermocouple)

The thermocouple temperature probe is used to collect temperature signals, and then the internal data processing module converts the collected temperature analog signals into digital signals, which are transmitted to the vehicle signals through CAN.



Differential Pressure  
Sensor

Resistance effect: The electric bridge is composed made by MEMS technology and the measured pressure is converted into current signal (mA).

## Products in Production



### Temperature and Manifold Absolute Pressure

The intake temperature pressure sensor measures the intake temperature and pressure of the engine and feeds back to the ECU for precise control of the intake volume of the engine.



### Resolver-OE

Resolver sensor is mainly used for new energy vehicles with driving motor control, which is the core sensor of electric drive system.



### Nox sensor

NOx sensors are used to measure the concentration of NO and NO<sub>2</sub> in vehicle exhaust, which is controlled by the closed loop of the ECU to meet the requirements of emission regulations.

**EGTS**

# EGTS(PTC/NTC) –Basic Principle



## ➤ The Basic Principle

Heat sensitive effect: platinum resistance temperature sensor (RTD) is a heat sensitive resistance made of platinum.

TCR=0.003851/°C

Pt100 ( R0=100Ω )

Pt200 ( R0=200Ω )

- According to IEC751 international standard, temperature coefficient

TCR=0.003851/°C,

Pt100 (R0=100Ω)

Pt200 (R0=200Ω)



## ➤ Main Function

Used to measure the exhaust temperature of particulate matter filters (DPF), selective catalytic reduction (SCR), and other devices in the automotive exhaust post-treatment system, in order to accurately control DPF regeneration and ensure the catalytic efficiency of SCR.

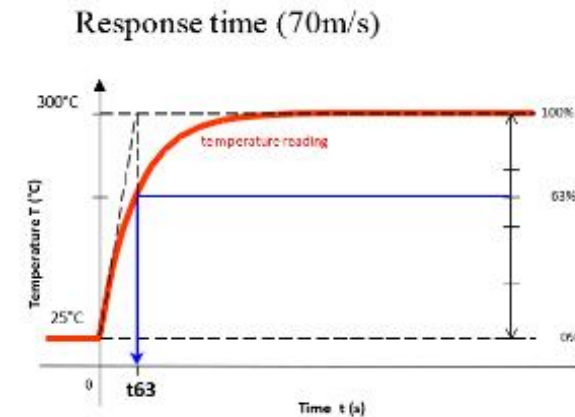
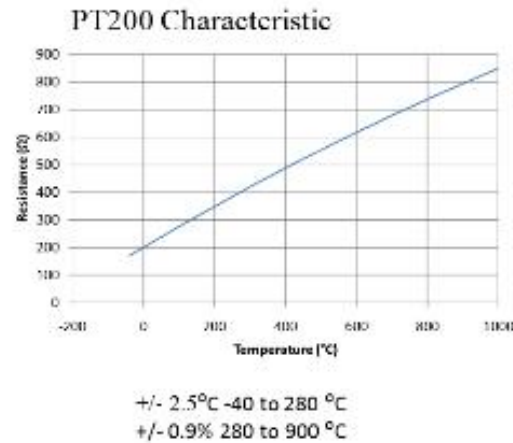
- Protecting engine and exhaust system components
- Used for OBD diagnostic system
- Used for engine control system



## EGTS(PTC/NTC) –Parameter



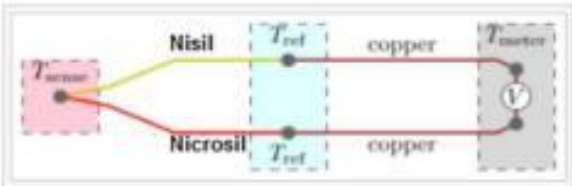
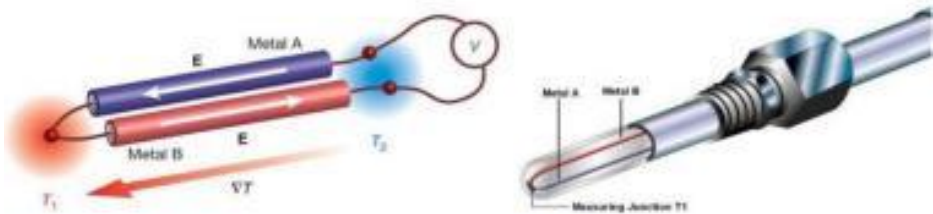
Item	Testing	Parameter
1	Limit resistance	100Ω/200Ω@0°C
2	Temperature Range	-40°C~1000°C
3	Measurement Accuracy	-40°C~280°C: ±2.5°C > 280°C: 0.9%
4	Response Time(T63)	Gas flow rate 11m/s, <11s Gas flow rate 70m/s, <5秒





传感器温度测量范围及稳态精度要求：  
Measurement Range and Requirements

- 测量温度范围Temp. range :  $-40^{\circ}\text{C} \sim 1000^{\circ}\text{C}$
- 传感器有效输出精度Output of sensor:  $-40 \sim 650^{\circ}\text{C}$  ,  $\pm 5^{\circ}\text{C}$  ;  
 $650 \sim 950^{\circ}\text{C}$  ,  
测量标准值的(Measurement Standard Value) $\pm 1\%$



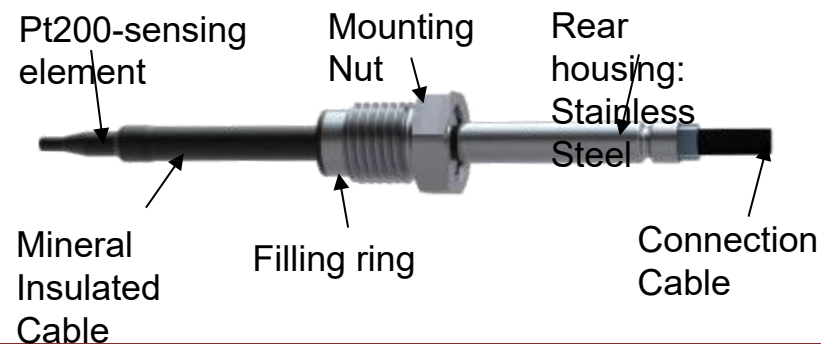
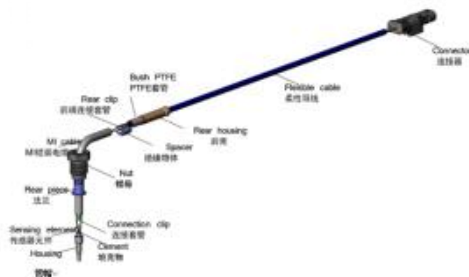
传感器温度响应精度要求：  
sensor Response Requirement

No.	Gas Temp. ( $^{\circ}\text{C}$ )	Gas Flow Rate ( m/s )	Response Time ( S )
1	300	11	$< 11$
2	300	70	$< 5$





- 薄膜铂电阻温度传感器已经在排气系统中用于测量排气温度的成熟技术
- 使用耐高温不锈钢材料，确保产品优良耐久性的同时保证成本的最优化
- 通过减小封装直径实现快速的响应速度，内控响应时间 < 10s.
- 优秀的线性输出
- 多种功能长度：18mm, 25mm, 35mm, 40mm, 50mm, 70mm等
- 0到120°折弯角度，灵活满足客户各种要求
- Thin film platinum resistance temperature sensors have become a mature technology for measuring exhaust temperature in exhaust systems
- Using high-temperature resistant stainless steel materials to ensure excellent durability of the product while optimizing cost
- By reducing the packaging diameter to achieve fast response speed, the internal control response time is less than 10 seconds
- Excellent linear output
- Multiple functional lengths: 18mm, 25mm, 35mm, 40mm, 50mm, 70mm, etc
- 0 to 120 ° bending angle, flexible to meet various customer requirements



试验号 Test No.	试验名称 Test name	试验参数 OE parts test program	试验样件数 Quantity	备注Other
功能试验Function test				
01		在0℃, 100℃, 400℃, 800℃下测试电阻输出及响应时间。Function and response time tests at 0° C, 100° C, 400° C and 800° C	All	
耐久性和环境试验等Durability and environmental tests				
02	导线抗拉强度试验Cable tensile strength test	140℃时在传感器的接插件和导线之间施加 80N 的拉力后, 检查导线连接处有无松动和电器的连通性。 性。250℃时在传感器和导线之间施加 100N 的拉力后, 检查导线连接处有无松动和电器的连通性。 80N @140℃, connector and cable; 100N @280℃, sensor and cable.	2	Pass
03	温冲耐久试验Thermal shock aging test	90s@850℃, 30s@常温/RT; 8000个循环/8000 cycles.	5	Pass
04	高温耐久试验High temperature aging test	500h@850℃, 40h@900℃	4	Pass
05	低温存储试验Low temp. storage test	IEC 60068-2-1	5	Pass
06	高温存储试验High temp. storage test	IEC 60068-2-2 200h@+250℃; 44h@280℃	3	Pass
07	温湿度循环试验Humidity & heat cycle test	ISO 16750-3 VII. 循环次数(Cycle times): 4 。	5	Pass
08	振动试验Vibration test	试验标准/Test standard: ISO 16750-3, VII。 每个方向32h/ The test time for each direction: 32h 10Hz@PSD18, 20~30Hz@PSD36, 180Hz@PSD1, 2000Hz@PSD1	4	Pass
09	跌落试验Drop test	ISO 16750-3 高度/Height: 1 m 地面/Ground: 混凝土 /Concrete 试验方法/Test method: 自由跌落/Falling down freely	4	Pass
10	盐雾试验Salt spray test	试验标准/test standard: DIN 50021 盐水浓度/Brine concentration: 5±0.1% 温度/Temperature: 35±2℃ 时间/time: 168小时/hours	3	Pass
11	防水试验Water spray test	DIN 40050-9, IPX9K	3	Pass
12	耐工业溶剂试验Chemical exposure test	按 GB/T2432 规定进行耐工业溶剂试验Do the test according to GB/T2432。	4	Pass
13	温度冲击试验Thermal shock test	低温/Low temp. : -40℃; 高温High temp. : 120℃; 试验时间/Time: 1h; 转换时间/Change time: 20s~30s; 循环次数/Cycles: 500。	4	Pass

# EGTS-Production Machine



Sandblasting machine



Ultrasonic cleaning machine



PTC automatic welding equipment



Glue dispensing and welding machine



Laser welding equipment



Bending machine



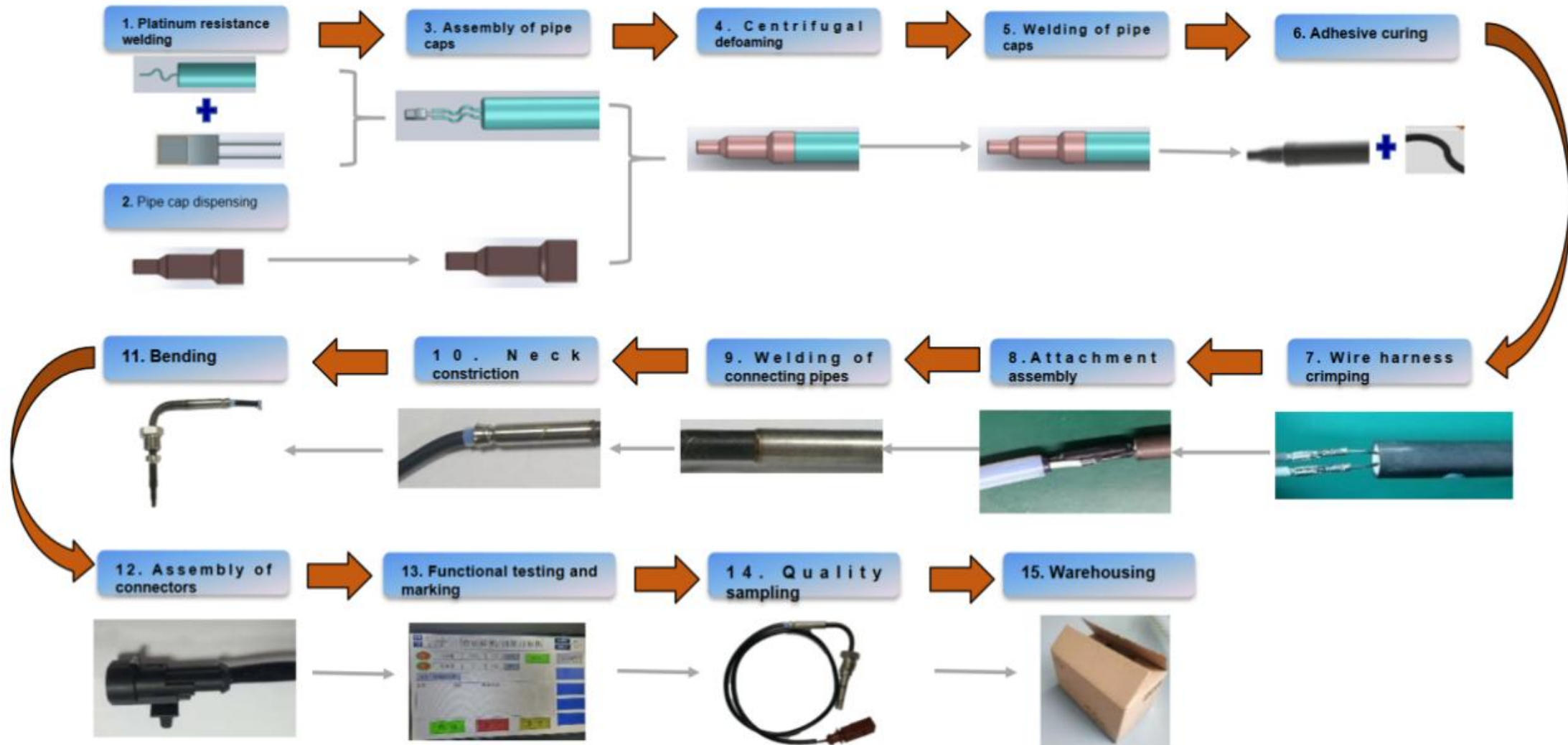
High temperature chamber



Temperature sensing component tester



# EGTS-Production Process





# EGTS-Production Process



Automatic cutting machine



Stainless steel terminal machine



Terminal crimping welding machine



Test in high temperature



Laser welding equipment



Reducing mill



Pressing machine



Automatic threading and crimping terminal all-in-one machine



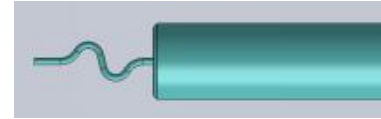
Functional testing bench



Marking machine



## Design & Patent



Ø Pulling increases :

S design as buffer and not easy to loosen or break

Ø Rapid response speed is realized by reducing the package diameter, and control response time is less than 10s.



## Test Equipment



High temp. thermal shock test bench



Response time test bench

Ø Cable tensile strength test

Ø Thermal shock aging test----8000 cycles

Ø Thermal shock test-----(-40°-120°) 500cycles

Ø High temp. aging test----850°@500H and 900°@40H

Ø Vibration test----Test standard ISO 16750-3

Ø Drop test----Test standard ISO 16750-3

Ø Salt spray test ----Test standard DIN-50021

Ø Chemical exposure test----Test standard GB/T2432

# EGTS (Thermalcouple)-Principle



**1. 传感器温度测量范围及稳态精度要求:**  
**Sensor temperature measurement range and steady-state accuracy requirements:**

测量温度范围  
Measuring temperature range: -40°C ~ 1000°C;  
传感器有效输出精度: Effective output accuracy of sensors  
1、-40 ~ 650°C, ±5°C;  
2、650 ~ 950°C, 测量标准值的±1%.

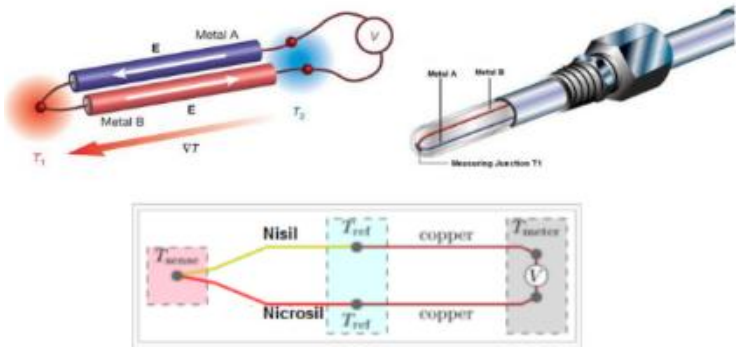
**2.传感器温度响应精度要求:**  
**Sensor temperature response accuracy requirements**

ITEM	Gas temperature (°C)	Gas flow rate (m/s)	response time (S)
1	300	11	< 11
2	300	70	< 5



**3. 工作原理: Working principle:**

含有4路独立的温度检测功能, 使用4个热电偶温度探头采集温度信号, 再由内部的数据处理模块将采集到的温度模拟信号转换为数字信号, 通过CAN总线传输给整车信号。 It contains 4 independent temperature detection functions, using 4 thermocouple temperature probes to collect temperature signals. The internal data processing module converts the collected temperature analog signals into digital signals, which are transmitted to the entire vehicle signal through the CAN bus. 97/10000 real-time translation Working principle: It contains 4 independent temperature detection functions, using 4 thermocouple temperature probes to collect temperature signals The internal data processing module converts the collected temperature analysis signals into digital signals, which are transmitted to the entire vehicle signal through the CAN bus



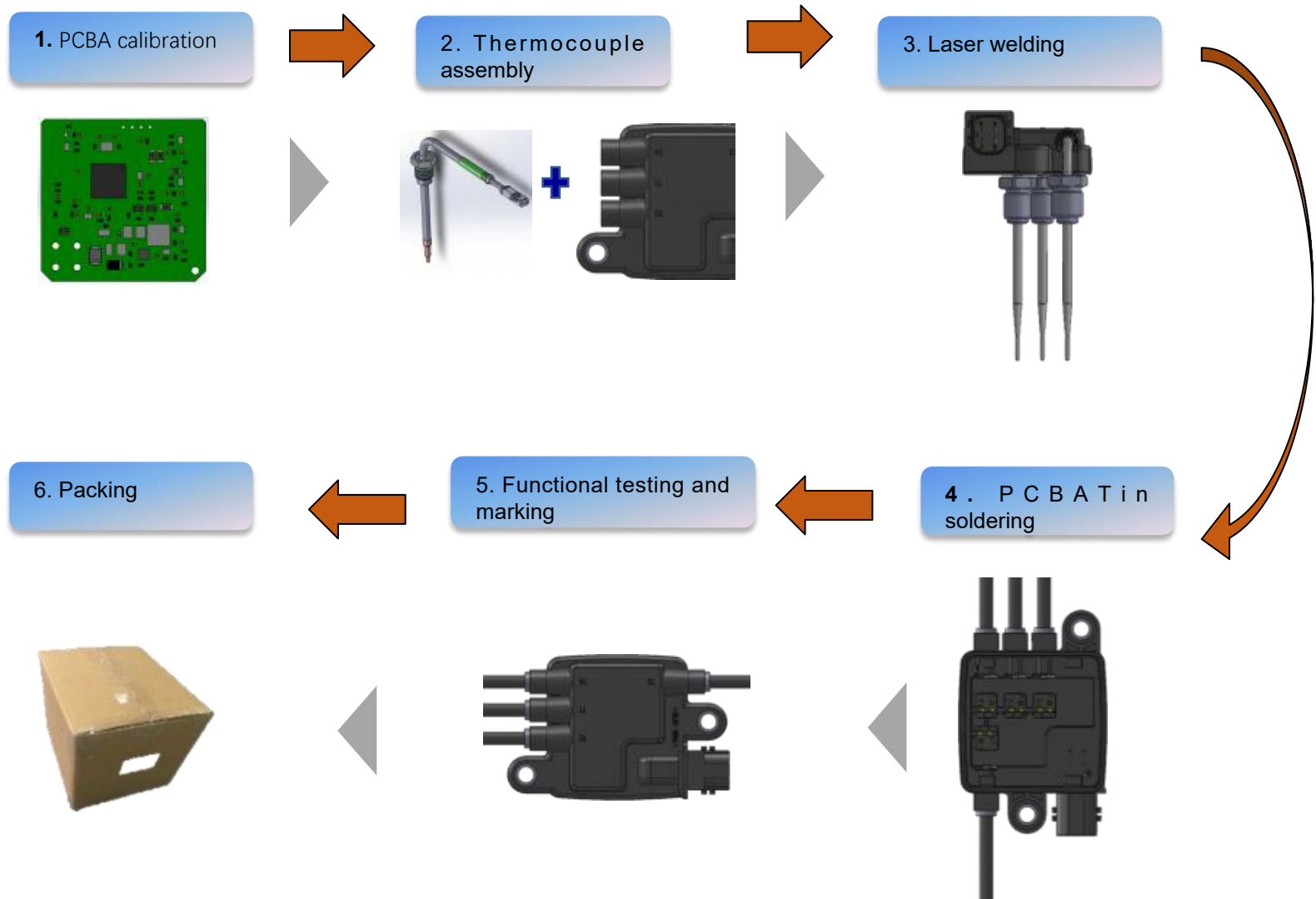
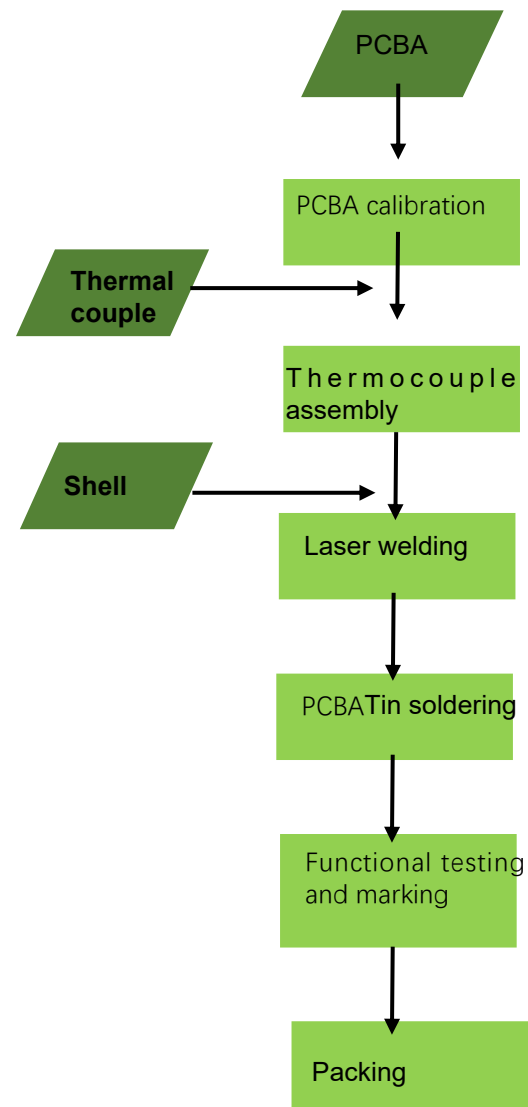


# EGTS (Thermalcouple)-Verification



试验号 Test No.	试验名称 Test name	试验参数 OE parts test program	试验样件数 Quantity	备注Other
功能试验Function test				
01		在100°C, 300°C, 500°C and 650°C下测试电阻输出及响应时间。	All	
耐久性和环境试验等Durability and environmental tests				
02	导线抗拉强度试验Cable tensile strength test	140°C时在传感器的接插件和导线之间施加 80N 的拉力后，检查导线连接处有无松动和电器的连通性。 250°C时在传感器和导线之间施加 100N 的拉力后，检查导线连接处有无松动和电器的连通性。	1	Pass
03	热循环测试Thermal shock aging test	20s@900°C，20s@常温；5000个循环	2	Pass
04	低温存储试验Low temp. storage test	GB/T 2423.1 144h@-40°C	2	Pass
05	高温存储试验High temp. storage test	GB/T 2423.1 144h@+125°C	2	Pass
06	温湿度循环试验Humidity & heat cycle test	GB/T 2423.4。循环次数(Cycle times): 4。	2	Pass
07	振动试验Vibration test	试验标准QC/T 413 中3.12 每个方向8h 频率：10-25，振幅1.2；扫描速率1 oct/min；频率：25-500，加速度30m/s²；扫描速率1 oct/min；	2	Pass
08	跌落试验Drop test	GB/T 2423.8 中“方法一：自由跌落”的有关规定 高度：1 m 地面：混凝土 试验方法：自由跌落	2	Pass
09	盐雾试验Salt spray test	试验标准 ISO 9227 盐水浓度：5±0.1% 温度：35±2°C 时间：168小时	2	Pass
10	防水试验Water spray test	DIN 40050-9, IPX9K	2	Pass
11	耐工业溶剂试验 Chemical exposure test	按 GB/T2432 规定进行耐工业溶剂试验	2	Pass
12	温度冲击试验 Thermal shock test	GB/T 2423.22 低温：-40°C；高温：120°C； 试验时间：1h； 转换时间：20s~30s； 循环次数：300。	2	Pass
13	辐射抗扰度试验	按 GB/T 17619 的规定，选择其中一种方法进行测试。	2	Pass
14	静电放电干扰试验	按 GB/T 19951 的有关规定进行。接触放电和空气放电的放电等级为±4kW，带电模式和非带电模式下测试电控单元（SCU）可触及的表面，非带电模式还需要测试接插件的每一个管脚。	2	Pass
15	沿电源线的瞬态抗扰性试验	按 GB/T 21437.2 的有关规定进行	2	Pass
16	电磁骚扰性试验	按 GB/T 18655 的有关规定进行	2	Pass

# EGTS (Thermal couple)-Production Process



# EGTS (Thermal couple)-Production Process



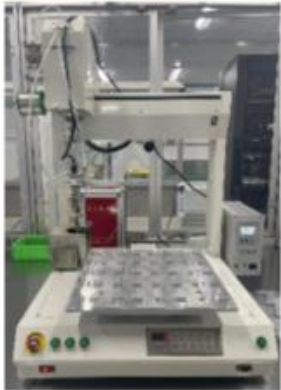
PCBA calibration



Resistance welding



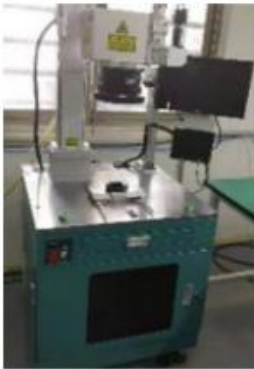
Tin soldering



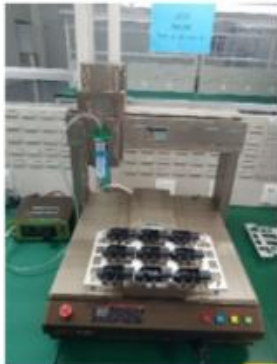
Terminal crimping



Laser marking



Glue



Functional testing



Laser marking



**DPS**

➤The Basic Principle

- 压阻效应：用MEMS技术制作的硅应变片组成电桥，将被测压力转换为与之对应的电流信号（mA）
- Resistance effect: The electric bridge is composed made by MEMS technology, and the measured pressure is converted into current signal (mA)

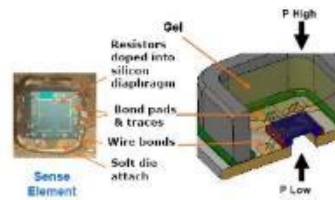


Key Parameter		
	Parameter	Standard
		P1: - 20 ~ 120KPa D ( can be customized)
1	Pressure range	P2: - 20 ~ 80KPa D ( can be customized)
		- 20 ~ 100KPa D (can be customized)
2	Temp. range	- 40 - 140 °C
3	Measuring precision	± 1 % Vcc
4	Supply voltage	5 ± 0 . 5 VDC
5	Output signal	10% - 90% Vcc o r SENT ( Can be customized)

# DPS–Basic Principle

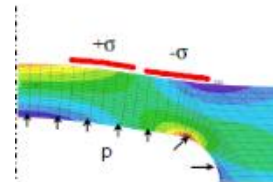


## Technology



- Ø Chips MEMS :Measurement differential pressure directly & High accuracy & Durability
- Ø Chips design : Protected by special gel & Ceramic circuit board and Gold wired

## Test Equipment



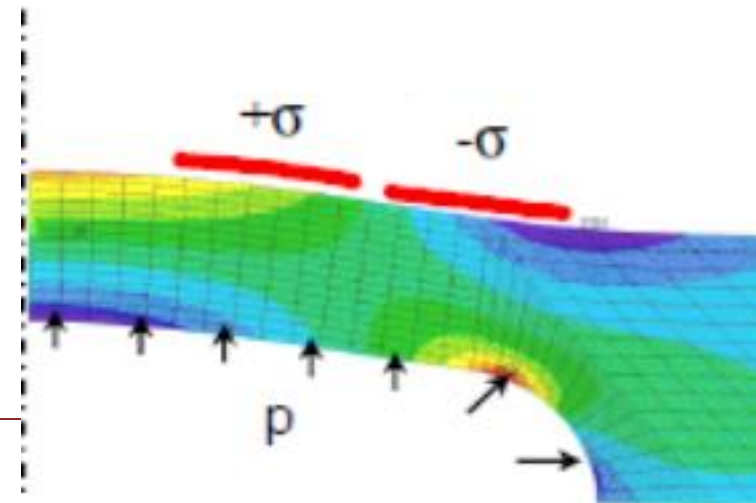
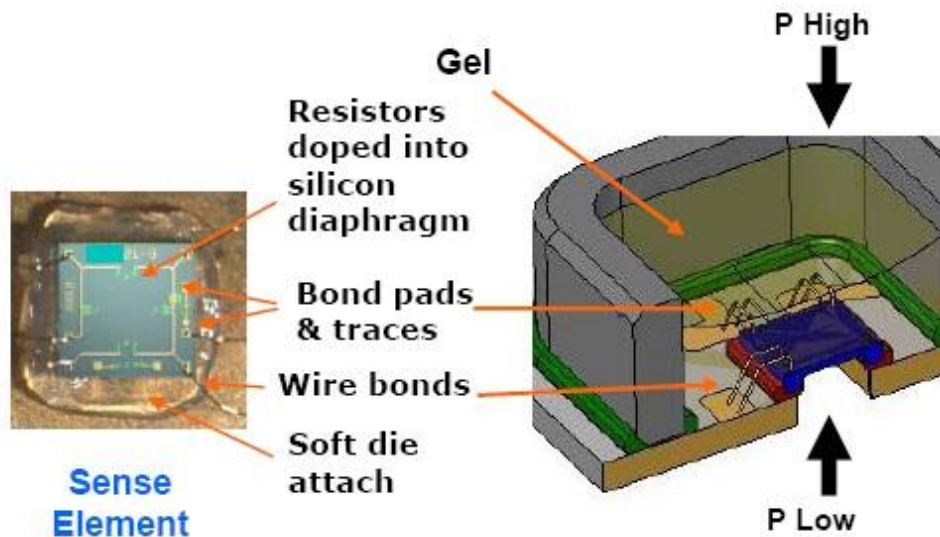
- Ø Temperature Compensation:  
Ensure high-precision output under different temperature
- Ø Rapid response :Reduce the failure rate of products during application



## DPS – Advantage



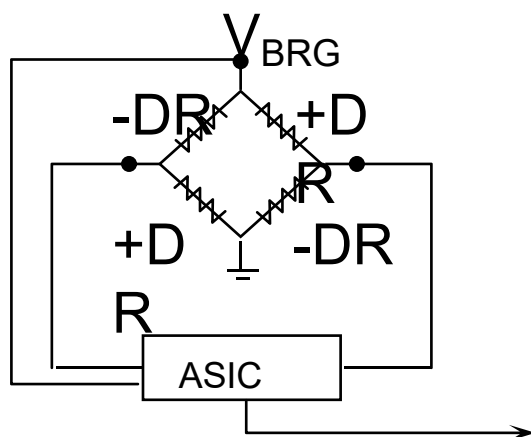
- 采用单芯片MEMS感应技术，直接测量压差，高精度
- 芯片由特殊凝胶保护，采用陶瓷基板和金质导线：绝缘积碳，水汽以及酸性物质
- 良好的MEMS芯片耐久表现
- 调制电路具有实时温度补偿，保证在不同温度段的高精度输出
- 快速的响应时间及高精度保证在DPF&GPF的应用中，快速的响应时间可以更及时精确的判断再生时间，降低DPF&GPF失效率。
- Adopting single-chip MEMS induction technology, directly measuring pressure difference with high precision
- The chip is protected by special gel, using ceramic substrate and gold wire: insulation carbon deposition, water vapor and acid substances
- Good durability performance of MEMS chips
- The modulation circuit has real-time temperature compensation to ensure high-precision output in different temperature ranges
- Fast response time and high precision ensure that in the application of DPF&GPF, fast response time can more timely and accurately determine the regeneration time, reducing the failure rate of DPF&GPF.





## ➤ 基本原理

- 压阻效应：用MEMS技术制作的硅应变片组成电桥，将被测压力转换为与之对应的电流信号（mA）；
- 信号调理：信号调理电路（ASIC）将电流信号进行温度补偿、量程和零位标定后，转换成与压力成比例的电压信号输出。
- Basic Principles
- Piezoresistive effect: Silicon strain gauges made using MEMS technology form a bridge that converts the measured pressure into a corresponding current signal (mA);
- Signal conditioning: The signal conditioning circuit (ASIC) converts the current signal into a voltage signal proportional to the pressure after temperature compensation, range and zero calibration.



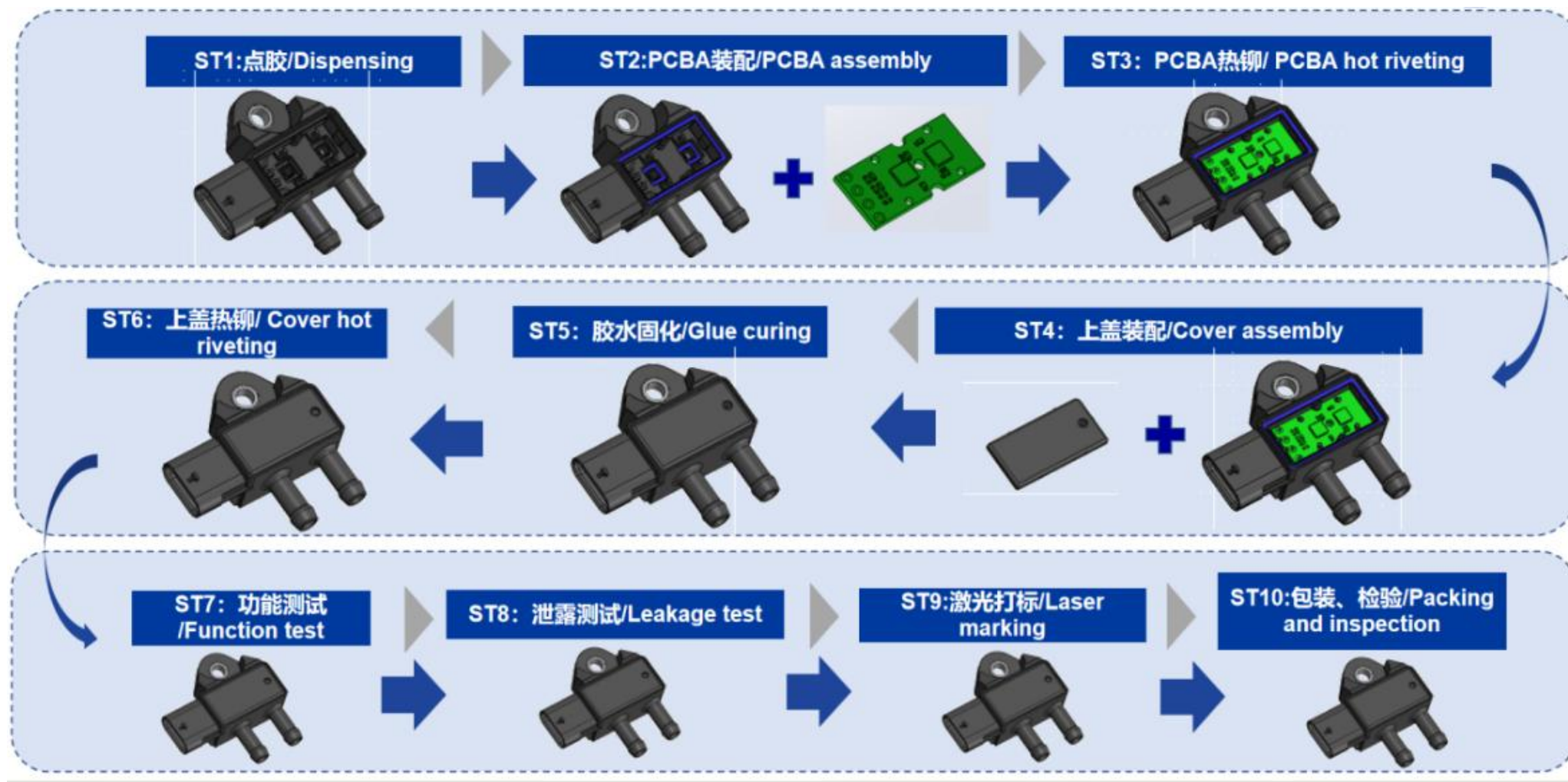
No.	Parameter	Standard
1	Pressure range	-20~100KPa D (Customizable)
2	Working temperature range	-40~140 °C
3	measurement accuracy	±2%Vcc
4	Power supply voltage	5±0.5 VDC
5	Output format	simulation/SENT

## ➤ 主要功能

- 压差传感器用于汽车尾气后处理系统颗粒物捕集器中(DPF)，测量DPF前后通道的尾气压力差，供ECU选择合理的DPF再生触发时刻及额外燃料注入量；也可应用于EGR及空气滤清器系统测量压差。
- major function
- The pressure difference sensor is used in the particulate matter trap (DPF) of the automotive exhaust post-treatment system to measure the exhaust pressure difference in the front and rear channels of the DPF, providing the ECU with a reasonable DPF regeneration trigger time and additional fuel injection amount; It can also be applied to measure pressure difference in EGR and air filter systems.



## DPS-Production Process



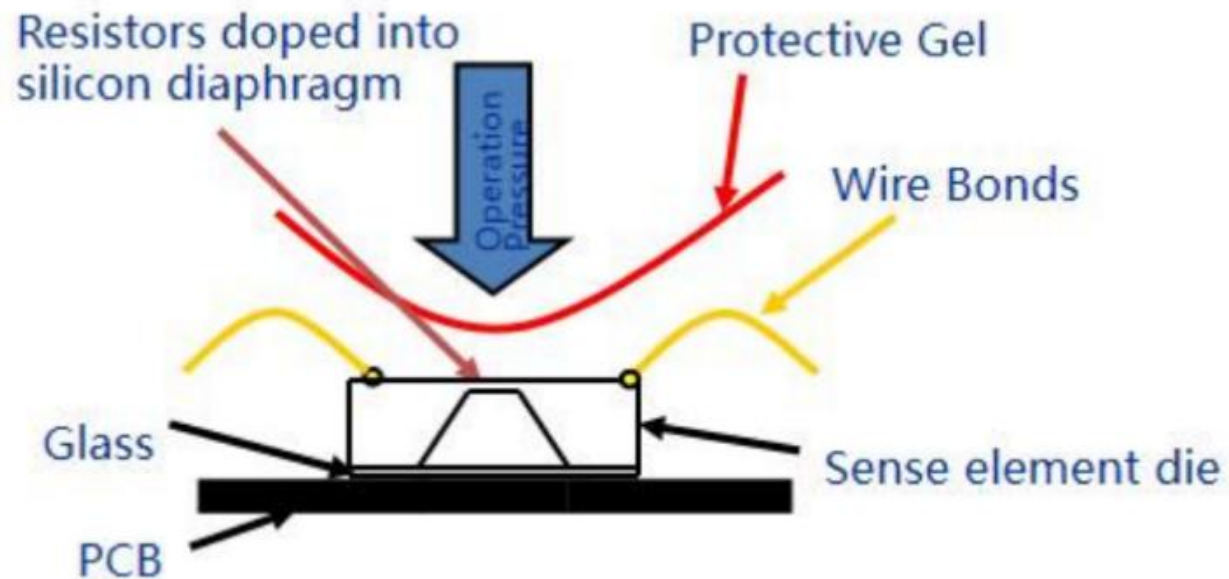
## DPS-Production Process



## TMAP- Basic Principle



The silicon strain gauge made based on MEMS technology is composed of Wheatstone bridge, which is amplified and compensated by ASIC to convert the measured pressure into the corresponding voltage or SENT signal.

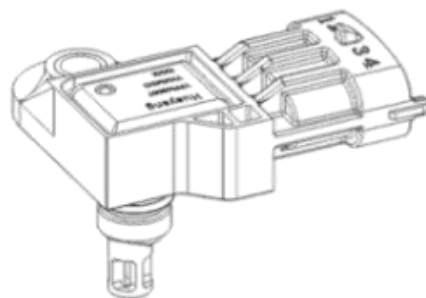




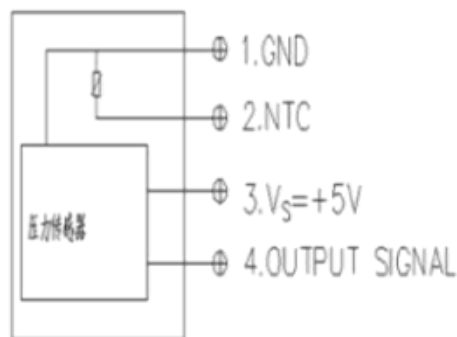
# TMAP- Basic Principle



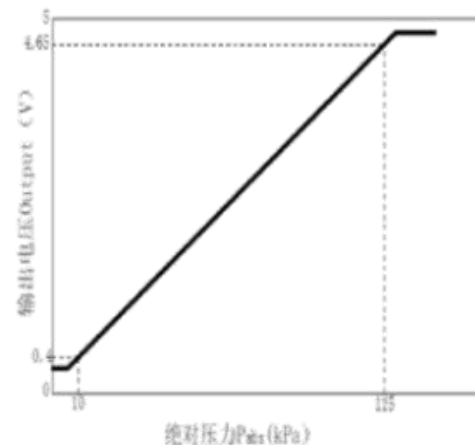
## 性能参数/Products Characteristics



按插件引脚定义



压力输出曲线/ Pressure output curve



压力传感器输出传递函数:

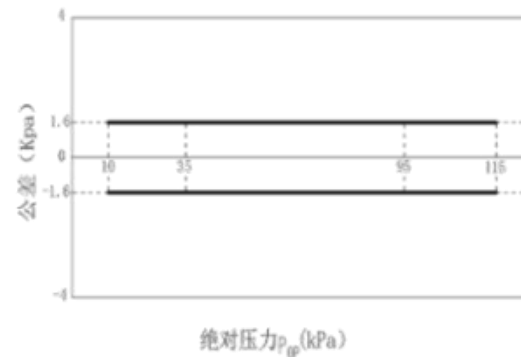
$$V_{out} = [(0.85/105) * P_{abs} - 0.1/105] * V_s$$

其中: V<sub>out</sub>=信号输出电压 (V)

P<sub>abs</sub>=绝对压力 (kPa)

V<sub>s</sub>=供电电压 (V)

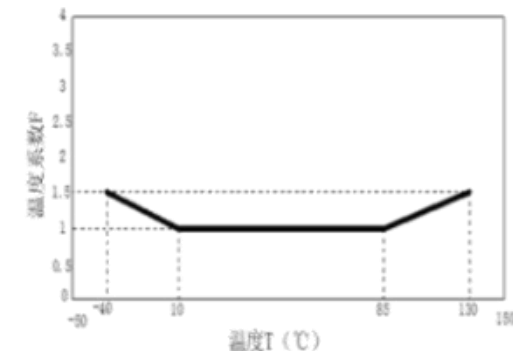
压力精度曲线/ Pressure accuracy curve :



NTC参数/NTC parameters:

参数	数值	单位
使用温度	-55~155	°C
标称阻值R100	186.6±2%	Ω
B25/100	3560±0.5%	K
耗散系数	2.5 MIN	mW/K MIN
响应时间	5 MAX	S
材质	环氧树脂	
导线规格	30AWG 200° C 黑色 芯线铜线径 Ø0.25	

温度系数曲线/ Temperature coefficient curve :



# TMAP- BOM



序号 No.	子零件/Components	材料/Material	数量/Number	工艺/Process
1	壳体组件/Housing	PBT-GF30	1	Moulding 注塑
1.1	端子/Terminal	Qsn6.5-0.1Y2	4	Tin plating 镀锡
1.2	嵌件/Spacer bush	H62	1	Tin +nickel Plating 镀镍锡
2	上盖/Cover	PBT-GF30	1	Moulding 注塑
3	PCBA	FR4	1	SMT
4	密封圈/O-ring	HBN2	1	Moulding 硫化
5	温敏电阻/NTC	Epoxy resin	1	\



# TMAP- Production Flow Chart





## TMAP- Verification



序号No.	试验项目 TestItem	试验机构 Responsibility	序号No.	试验项目 TestItem	试验机构 Responsibility
1	Low Temperature Operation	华世德	1	Burst pressure test	华世德
2	High Temperature Operation	华世德	2	Port break force	华世德
3	Temperature Shock	华世德	3	Humid Heat, cyclic (with frost)	华世德
4	Salt Spray test with operation, exterior	华世德	4	Drainage test	华世德
5	Damp Heat, cyclic	华世德	5	Leak tightness test	华世德
6	Mechanical shock	华世德	6	Constant Damp Heat 1000h 85/85	华世德
7	Temperature profile	华世德	7	Temperature cycling with defined change velocity	华世德
8	Sine Vibration	华世德	8	Life Endurance Pressure/Temperature Cycling	华世德
9	Random Vibration	华世德	9	Connector Plug-in force	华世德
10	Free Fall	华世德	10	Cable Locking and Device Pull Force	华世德
11	Temperature Shock	华世德	11	Connector Loads (perpendicular to connector)	华世德
12	Damp Heat, cyclic	华世德	12	Connecting and UnConnecting Force	华世德
13	High Pressure Cleaning IPX9K	Out sourcing	13	Connector Rotation Stiffness	华世德
14	Temperature Shock Immersion IPX7	Out sourcing	14	Acid Pressure + Temperature cycling	华世德
15	Dust Test IP6KX	Out sourcing	15	Gelquell test	华世德
16	Temperature Shock	华世德	16	Acid dryout	华世德
17	Mounting Torque & Mounting shift	华世德	17	Acid drop	华世德
18	Proof pressure test	华世德	18	Di Iodine Methane	华世德
19	Pin pullout force	华世德	19	Ammonia	华世德

**RESOLVER**

## Resolver-Basic Principle

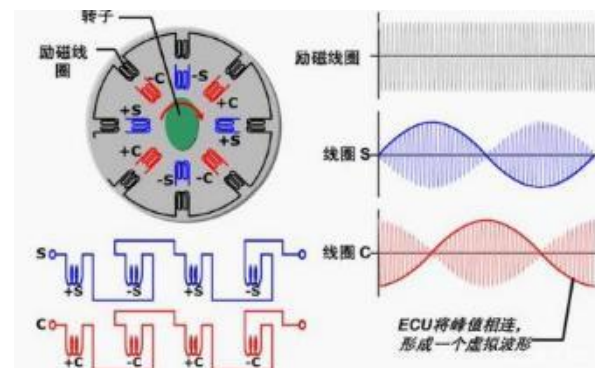


### ➤ Application

Resolver sensor is mainly used for new energy vehicle with driving motor control, which is the core sensor of electric drive system.

The resolver sensor consists of a stator and a rotor. The rotor is connected with the motor rotor, and the stator is connected with the motor stator. So the position relationship between the stator and the rotor can reflect the position relationship between the motor stator and the rotor.

The motor controller can obtain the relative position between the resolver sensor stator and rotor by decoding the VS and VC voltage signals, so as to know the relative position between the motor stator and motor rotor.



# Resolver-Production Flow Chart



ST01: 高度检查及激光打码



ST02: 定子绕线



ST03: TIG焊接



ST04: 涂覆



ST05: 胶水固化



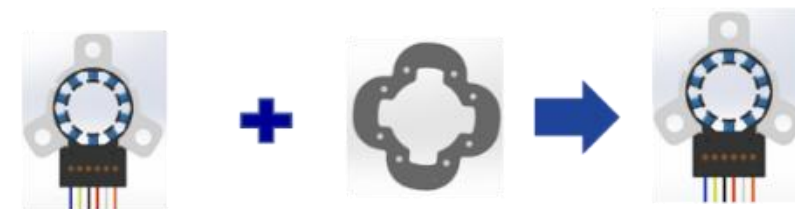
ST06: 电阻焊



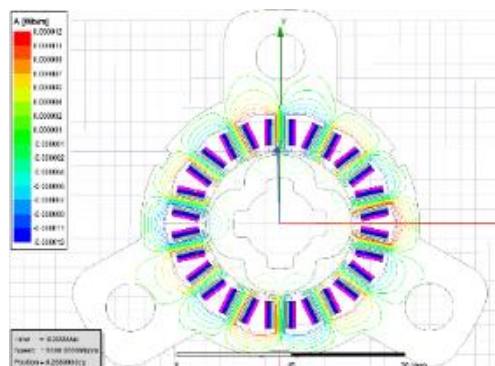
ST07: 安规测试



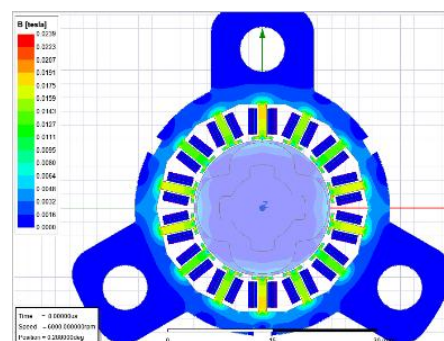
ST08: 动态测试及打标



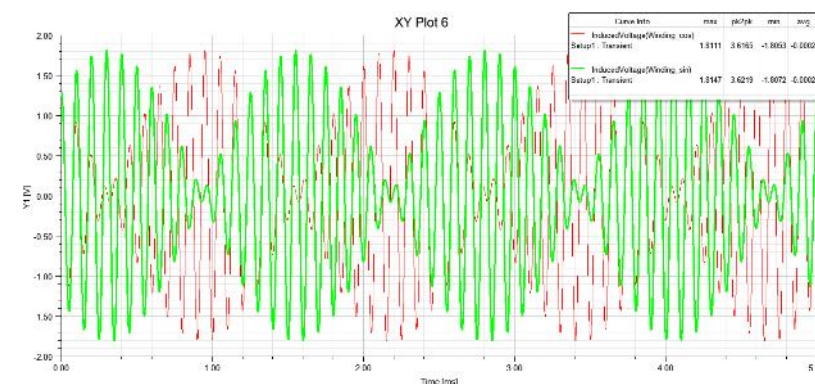
- 拥有专业的磁路设计和仿真能力，产品磁路经过经过多次迭代优化，鲁棒性强；
- 专业生产工艺、高速精密绕线机、全自动生产线、MES系统，保证生产质量过程；
- UAES的认可及大众MEB平台的应用。
- 118/1000Having professional magnetic circuit design and simulation capabilities, the product's magnetic circuit has undergone multiple iterations and optimizations, resulting in strong robustness;
- Professional production technology, high-speed precision winding machine, fully automatic production line, MES system, ensuring the production quality process;
- The recognition of UAES and the application of the Volkswagen MEB platform.



磁力线分布图  
Magnetic field line  
distribution



magB 云图

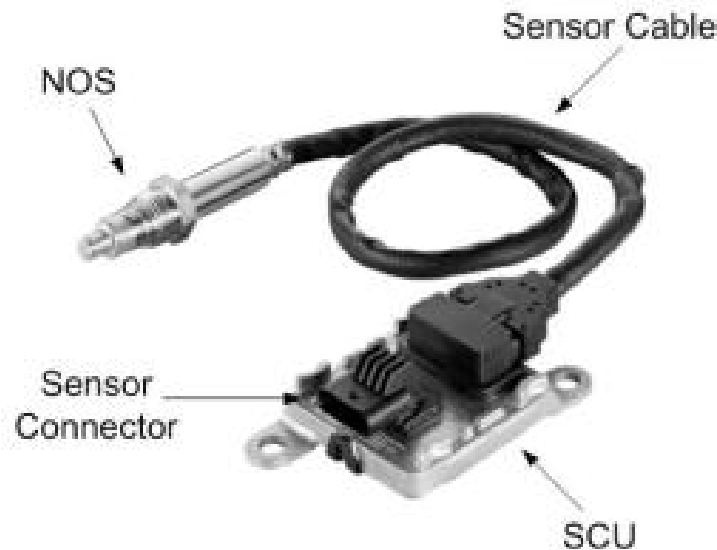


正余弦输出 Sine cosine output

**NOX SENSOR**

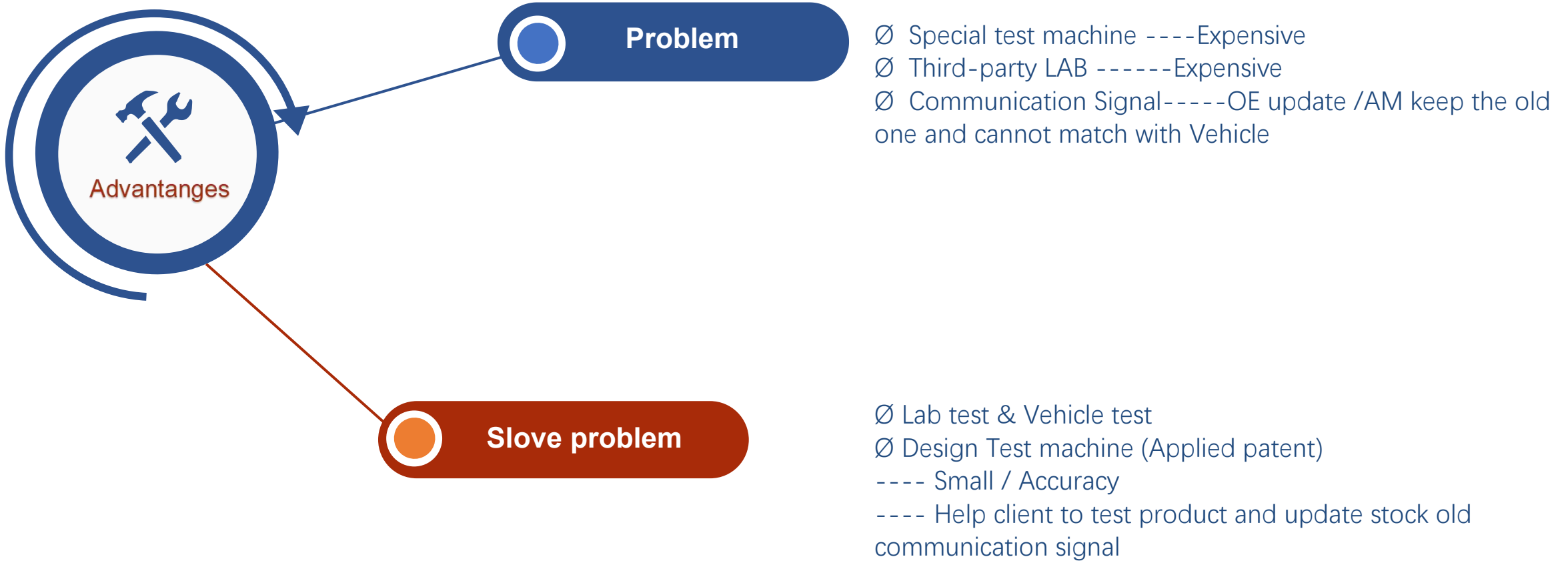
➤ NOx sensor introduction

- 氮氧传感器用于测量汽车尾气当中的氮氧化物（NO & NO2）  
The NOx sensor is used to measure nitrogen oxides in automobile exhaust.



NOx测量浓度范围 NOx measurement range	0~1500ppm
NOx测量响应时间 NOx response time	≤1100ms 新鲜 fresh ≤1200ms 老化 aged
NOx测量精度 Accuracy NOx	0~100ppm：±10ppm 100~500ppm：±10% 500~1500ppm：±15%
O2测量浓度范围 O2 measurement range	0~21%
O2测量响应时间 O2 response time	≤950ms 新鲜 fresh ≤1050ms 老化 aged
工作电压 supply voltage	12V/24V
最高尾气温度 Highest exhaust temperature	800℃
使用寿命 design life time	6000h or 350,000km

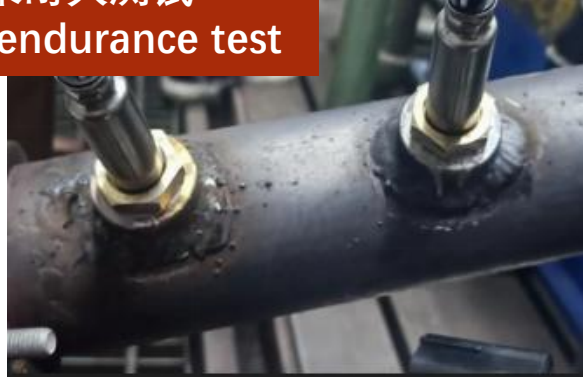
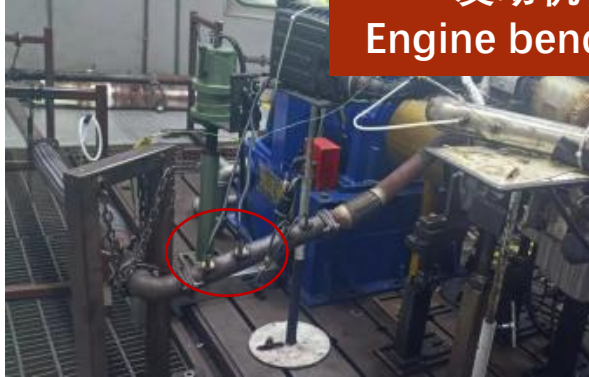




## NOX Sensor Advantage



发动机台架耐久测试  
Engine bench endurance test



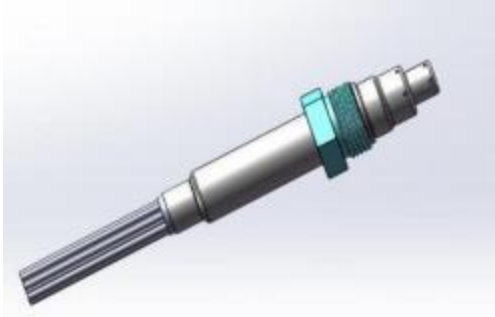
实车测试  
The vehicle test



## Product Advantages

- 1) The accuracy and responsiveness of the sensors are consistent with continental sensors
- 2) Vehicle tests and accuracy verification data were carried out, and the NOx sensor calibration was optimized according to the test results. Make sure the NOx sensor has excellent accuracy and responsiveness in the vehicle environment
- 3) The 500-hour endurance test was completed . After the test, the sensor performance was retested in the vehicle, and the results show the accuracy and responsiveness of the sensor meet the technical requirements of Continental.

## NOX Sensor Advantage



M20氮氧传感器多款结构设计

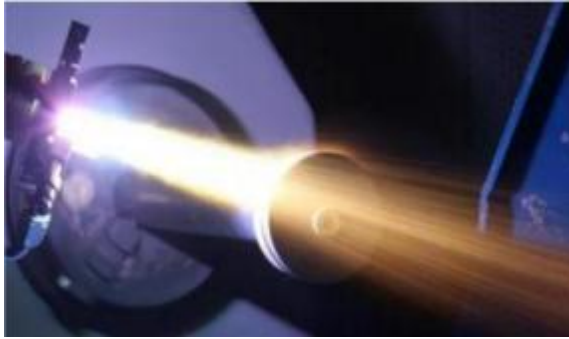
M20 Nox Sensor Various structures design



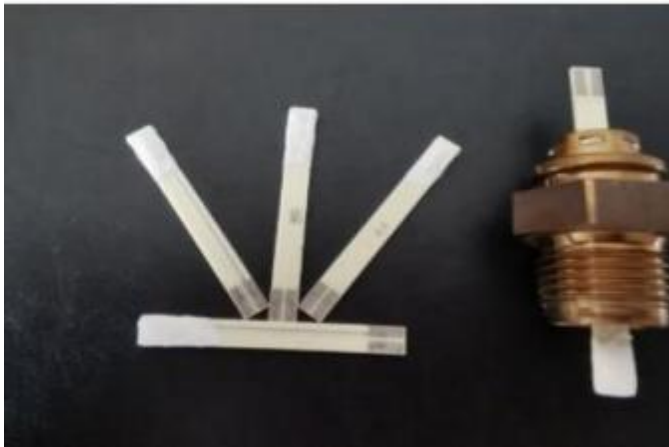
M18氧传感器多款结构设计

M18 Oxygen Sensor Various structures design

## NOX Sensor Advantage



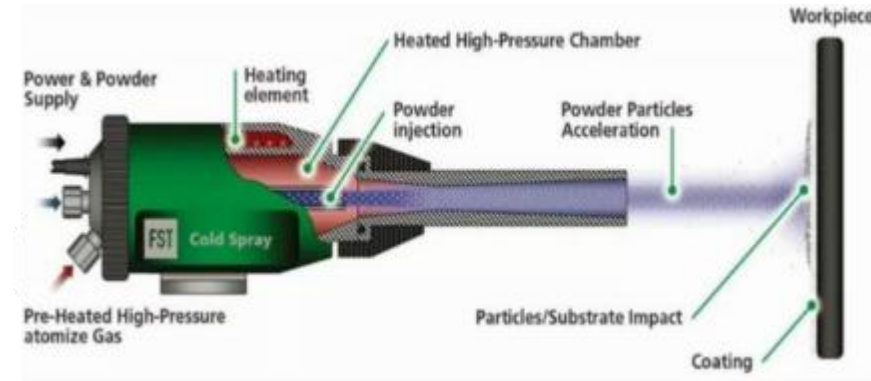
BoschDesign:采用等离子喷涂技术对芯片进行涂覆  
Coating the chip by adopting a plasma spraying technology



ourDesign:冷喷涂 (TSP)  
Thermal Shock Protection  
(Application Patent )



Advantages



1. Innovative use of TSP technology for coating :Simple operation and low cost

Because low requirements on temperature, environment, batch spraying can be realized without influence and damage to the chip

操作简单，投入费用低。因为对温度、环境等要求低，可以实现批量喷涂，并且不会对芯片产生影响和损伤。



2. 1000 hours high temperature rich combustion test

Spraying test: heat the chip with 12V, spray water on the chip head continuously, and observe whether the chip is cracked and whether the signal output is ok or not

1000小时，高温浓燃测试

喷水试验：在芯片12V供电加热，对芯片头部持续喷水，观察芯片是否炸裂，信号输出有无。



## NOX Sensor Advantage



### 产品优势productAdvantages

1)传感器的准确性和响应性与大陆传感器一致；

The accuracy and responsiveness of the sensors are consistent with continental sensors

2) 进行了大量的实车道路测试和验证，并根据试验结果优化NOX传感器标定，使NOX传感器在实车环境下具备较好的准确性和响应性

Vehicle tests and accuracy verification data were carried out, and the NOx sensor calibration was optimized according to the test results. Make sure the NOx sensor has excellent accuracy and responsiveness in the vehicle environment

3) 在真实的发动机台架完成500小时耐久试验，试验结束后实车复测传感器性能，结果显示传感器的准确性和响应性均满足大陆的技术要求

The 500-hour endurance test was completed . After the test, the sensor performance was retested in the vehicle, and the results show the accuracy and responsiveness of the sensor meet the technical requirements of Continental.

发动机台架耐久测试  
Engine bench endurance test

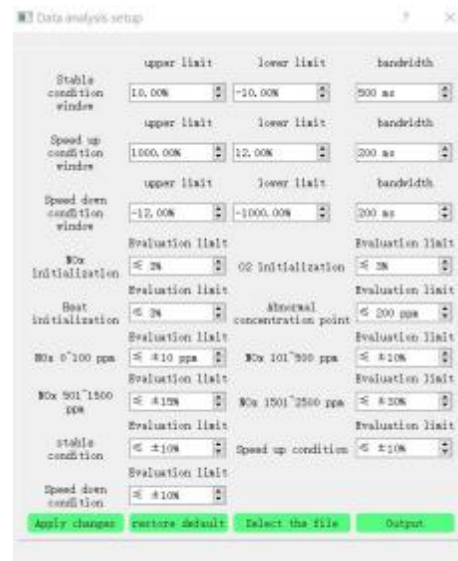
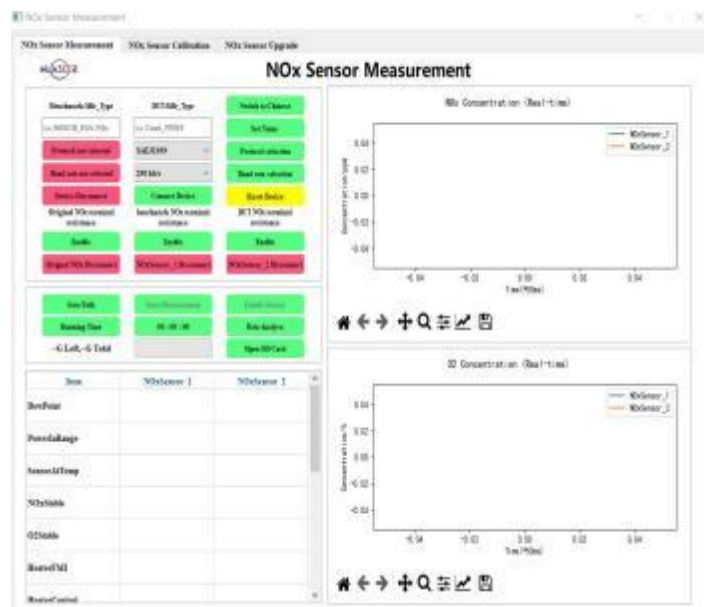


实车测试  
The vehicle test





# NOx Sensor Advantage



试验分析设置界面

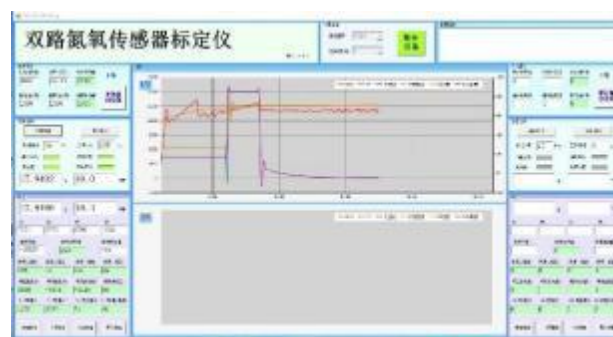
Analyze the Settings interface



Microsoft Word  
Document

试验分析报告示例

Sample test analysis report



传感器标定和升级界面

sensor calibration and upgrade interface

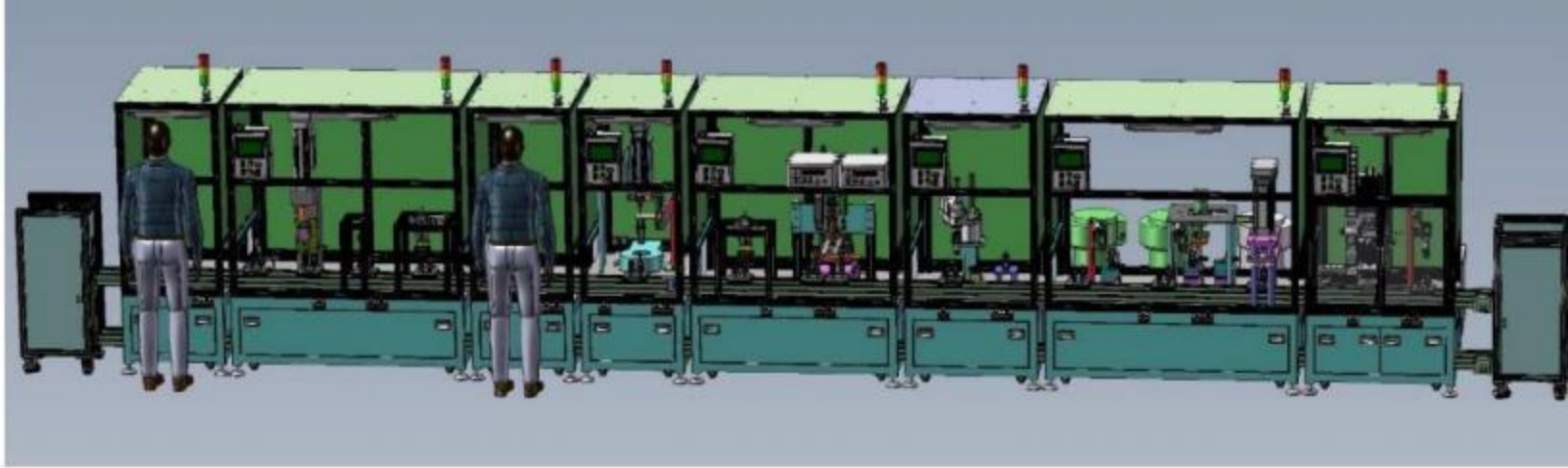
电脑中的上位机程序用于控制试验参数、记录试验数据、图形化展示试验数据、试验结果分析和氮氧传感器数据升级;

The PC program is used to control the test parameters, record the test data, display the test data graphically, analyze the test results and upgrade the NOx sensor data .

如出现原车通信协议升级或传感器升级，在了解到具体的升级内容后（需要5套最新。e件），我司会提供一版传感器的升级程序（开发周期一个月），届时可用此设备升级库存零部件程序，并且我司会提供具体的操作说明。

If there is an upgrade of the original vehicle communication protocol or sensor, after knowing the specific upgrade content (5 sets of newest oe pieces are required), our company will provide a version of the sensor upgrade program (development cycle is one month), at which time we can use this equipment to upgrade the inventory parts program, and our company will provide specific operation instructions.

## NOX Sensor Advantage



1.自主设计开发氮氧传感器自动化封装生产线

Independent Design and Development of Automatic Packaging Production Line for Nox Sensor

2.多元产品结构设计

Various structures design

3.快速换模柔性生产

Nox production line switching fast



**Huasder Electronic Technology (Kunshan) Co., Ltd.**

Add: No. 999 Taihu North Road, Zhoushi Town, Kunshan  
City, Jiangsu Province, P. R. China

# THANK YOU