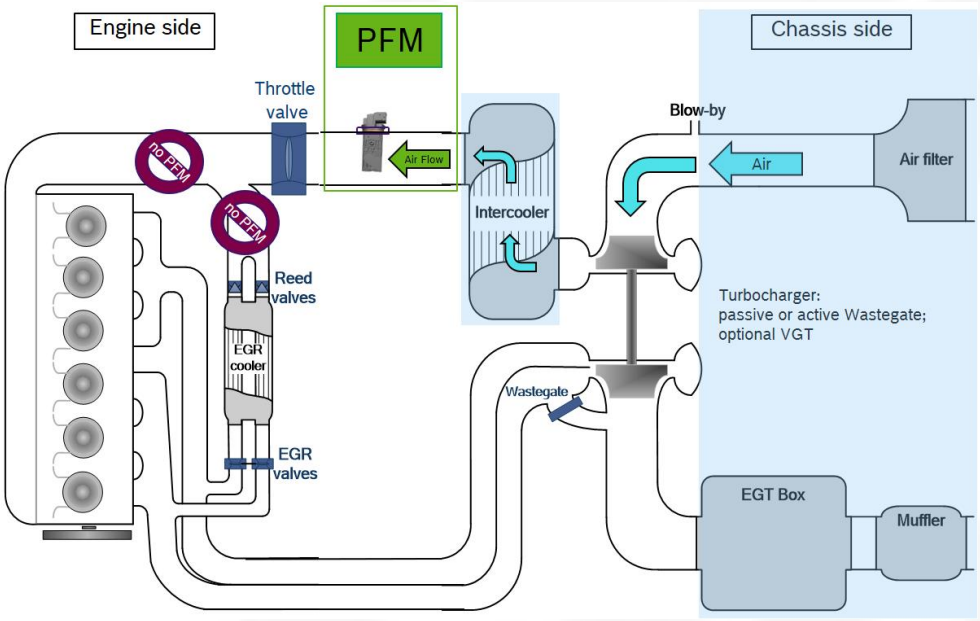
PFM Sensors for Diesel Engines

------ Product Introduction

Shanghai Autotec International Co., Ltd.
No. 509, Ruiqing Road 8 Building 2 Floor, Zhangjiang Hi-Tech Park, Pudong New District, Shanghai

PFM Sensors

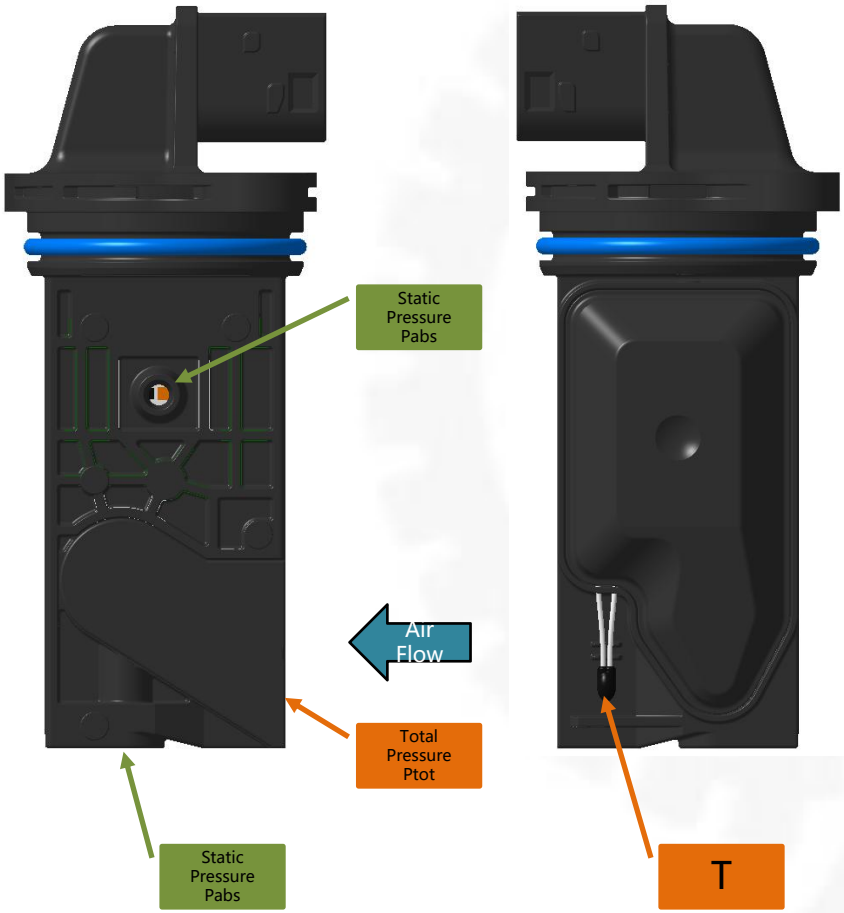
PFM Application Environment



The full name of the PFM Sensor for diesel engines is the air flow and pressure temperature sensor, which is mainly used to detect the fresh air flow located downstream of the turbocharger intercooler in the CV Diesel engine intake duct (excluding EGR).

The PFM Sensor is equipped with an absolute pressure sensor, a differential pressure sensor, and a temperature sensor, which measure the static pressure in the duct, the differential pressure (total pressure in the duct - static pressure), and the temperature of the flowing air, and transmit these measurements to the ECU for calculation and determination of the fresh air flow in the duct via the SENT signal.

PFM Sensors can also be applied to CNG engines.



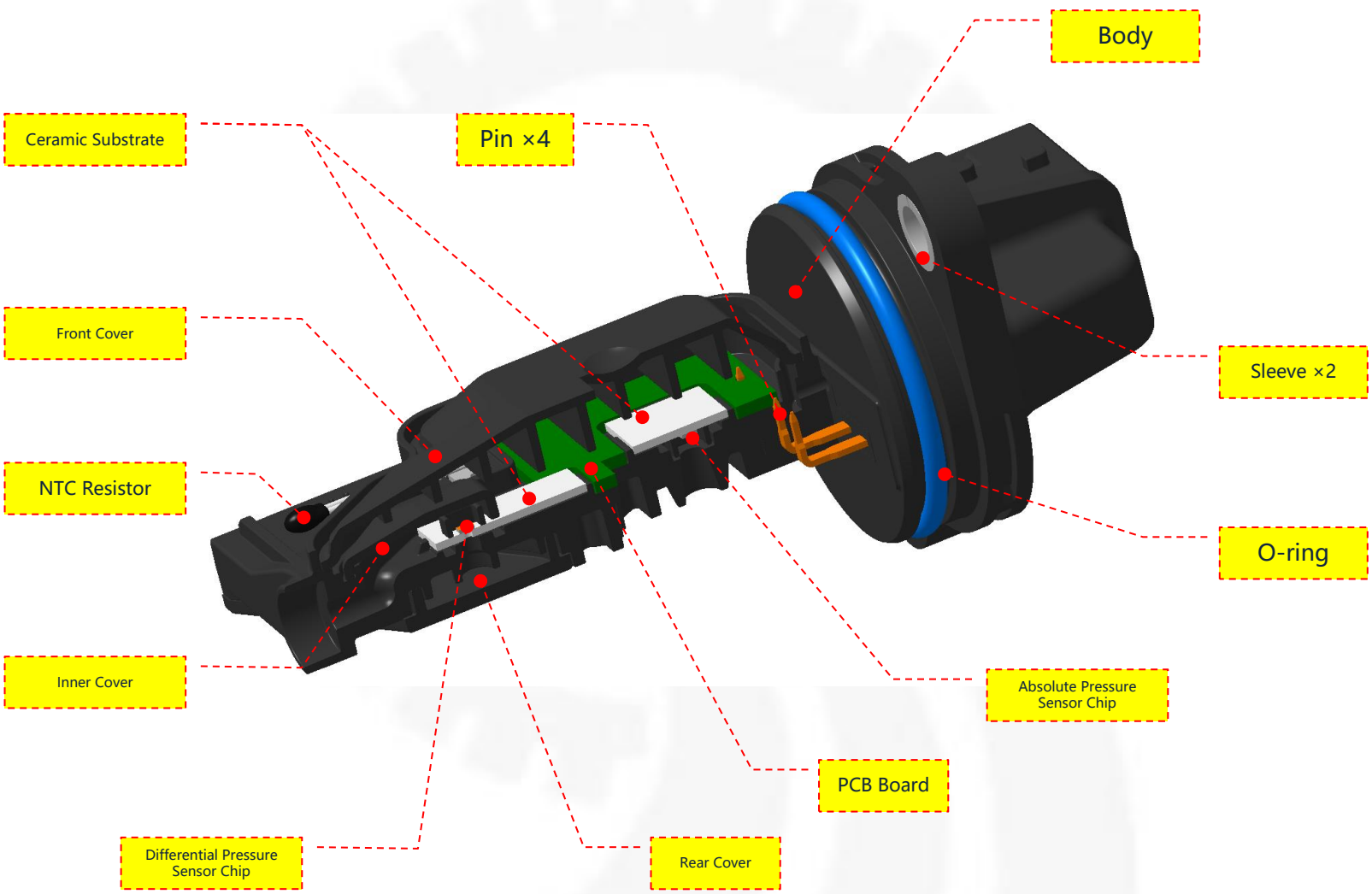
SENT1 Differential Pressure Sensor Output Characteristics:

Performance Parameters	Symbols	Min.	Typ.	Max.	Units
Operating Voltage	Vcc	4.85	5	5.15	V
	Vcc,max	-16		16	V
Operating Temperature	T	-40	-	+130	℃
Differential Pressure	ΔP= Ptot-Pabs	-16	-	2	kPa
FC1 Sent1 Output Limit	ΔP dig	1	-	4088	LSB
Operating Current	Im	-	-	15	mA

SENT2 Absolute Pressure Sensor Output Characteristics:

Performance Parameters	Symbols	Min.	Typ.	Max.	Units
Operating Voltage	Vcc	4.85	5	5.15	V
	Vcc,max	-16		16	V
Operating Temperature	T	-40	-	+130	℃
Absolute Pressure	Pabs	50	-	600	kPa
FC1 Sent2 Output Limit	Pabs dig	1	-	4088	LSB
FC2 Sent2 Output Limit	Tdig	1	-	4088	LSB
Operating Current	Im	-	-	15	mA

PFM Structural Scheme



PFM Sensor Design Verification Process

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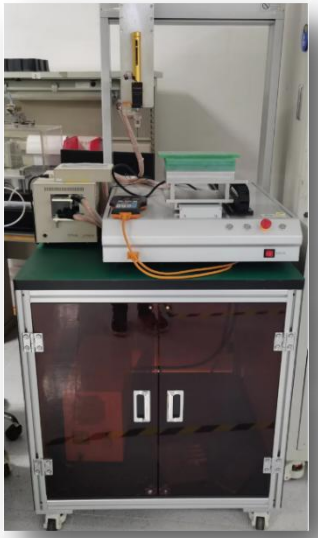
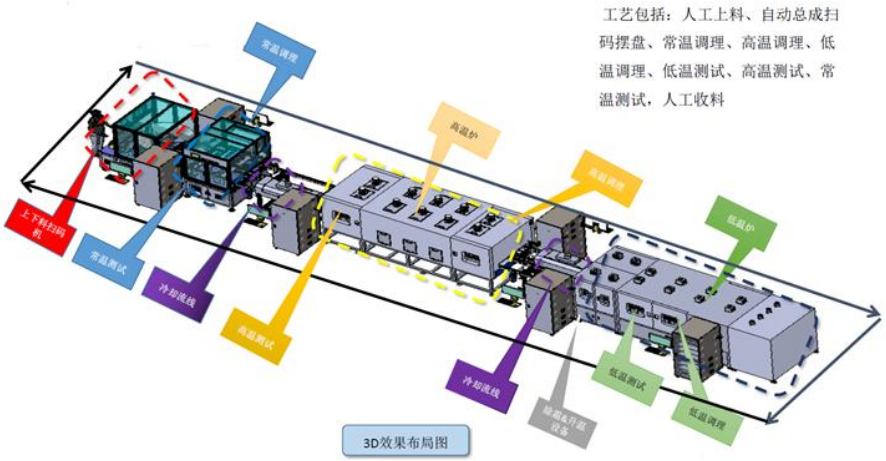
- Air Freezing Test
- Protection Level Verification
- FMEA
- Mold flow analysis
- Approval of component sample parts
- Assembly test verification
- Functional testing
- Electromagnetic compatibility Testing
- Mechanical dynamics Test
- Sealing test
- Weather resistance test
- Chemical Resistance Test

Calibration production line

Autotec

High-frequency resistance welding





Fully automatic aluminum wire bonding machine

Fully automatic calibration testing line