

Vehicle VOC test chamber introduction

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Simplewell 昇微



◆Temperature index

Temperature range: 20°C ~ 30°C high temperature cleaning (70°C)

Temperature deviation $\pm 1^{\circ}\text{C}$

Temperature fluctuation $\pm 0.5^{\circ}\text{C}$

Measurement accuracy $\pm 0.1^{\circ}\text{C}$

◆Humidity index

Humidity range: 40~70% R.H.

Humidity deviation $\pm 5\%$ R.H.

Fluctuation degree: $\pm 1\%$ R.H

◆Chamber pressure

10~50pa

◆Ventilation volume

Adjustment range 300~1200m³/H, air change rate 2.0-10 times/h

◆Wind speed

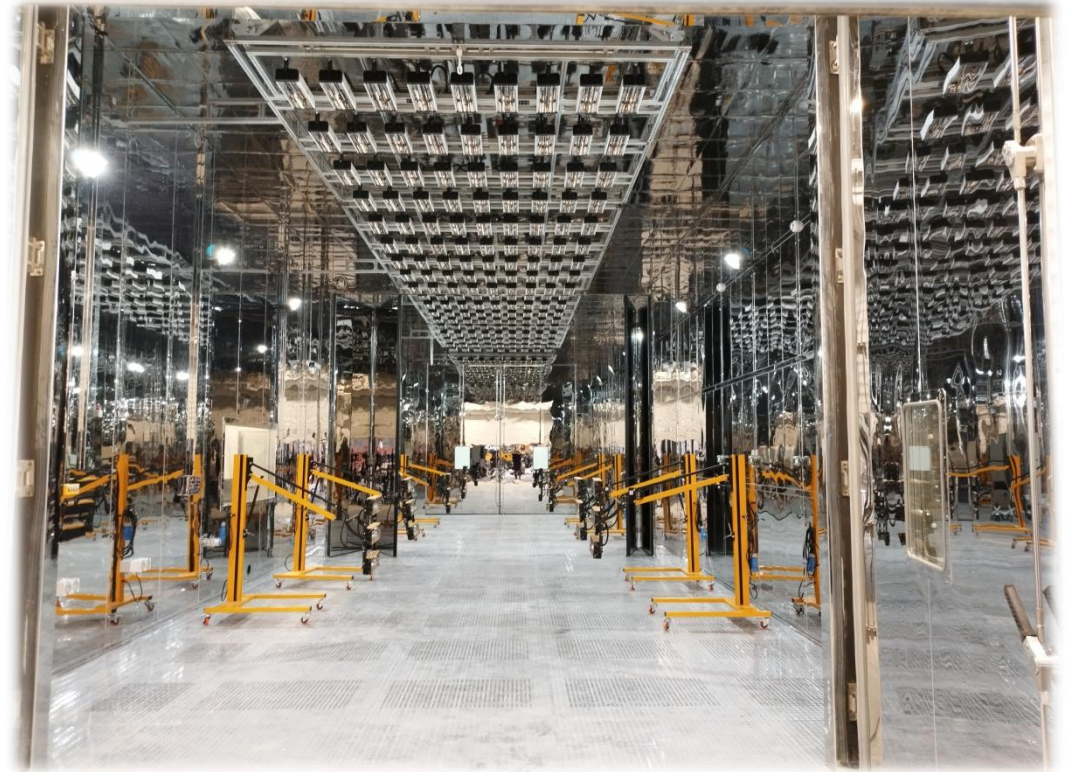
≤ 0.3 m/s air outlet from the ceiling mesh at the top, air return from the bottom ≤ 0.3 m/s, the measuring point is $>0.5\text{M}$ away from the car body

Environmental chamber pollutant background concentration value : blank background (unit mg·m⁻³) 1. Benzene content <0.010 ; 2. Toluene ≤ 0.02 ; 3. Xylene ≤ 0.02 ; 4. Ethylbenzene ≤ 0.02 ; 5. Styrene ≤ 0.020 ; 6. Formaldehyde ≤ 0.02 ; 7. Acetaldehyde ≤ 0.01 ; 8. Acrolein ≤ 0.01 ; 9. TVOC content < 0.200 ; 10. Single VOC and aldehydes and ketones ≤ 0.020 Ensure that the single-component VOC is less than 0.02mg/m³, or the single-component VOC is less than 10% of the limit value, the formaldehyde content is $<0.02\text{mg/m}^3$; the TVOC content is $<0.2\text{mg/m}^3$

Product presentation



Appearance



Internal

Product presentation

- Equipment door optional



Electric sliding door



Double door

Product feature

•The VOC treatment device inside the test chamber is simply arranged for easy cleaning and maintenance.

1. The internal air treatment system is arranged on the side of the test chamber and is made of stainless steel. The air handling system is not arranged at the bottom to facilitate bottom cleaning (there are dripping oil, dust and clean water from the car at the bottom, which must be cleaned). There is an air handling system at the bottom that cannot be cleaned. Side-mounted air handling systems do not have this drawback. Meanwhile, replacement and maintenance are easy. If there is water at the bottom, the activated carbon in the bottom air treatment system will fail. (See Figure 1)

2. The air handling system is arranged on the side and divided into many compartments. The air handling device adopts multi-unit processing, and the drawer structure is installed, disassembled and maintained. Extremely easy to use. The installation seal of each unit is made of polytetrafluoroethylene and fixed with screws. (See Figure 1)

3. The test chamber adopts a ceiling air supply and bottom floor trough air return structure, and the wind direction is controlled by an up and down air supply method. If the customer does not allow a floor trough at the bottom, use side air return, and the wind speed and other parameters will not be affected (see Figure 1)

Adopt: Air circulation fan at the top of the air-conditioning room → Ceiling mesh plate → Floor trough, side return air baffle → Internal filter → Air-conditioning room side return air outlet Ensure that the air flow is in the up and down direction, and the wind speed is within 0.3M/S

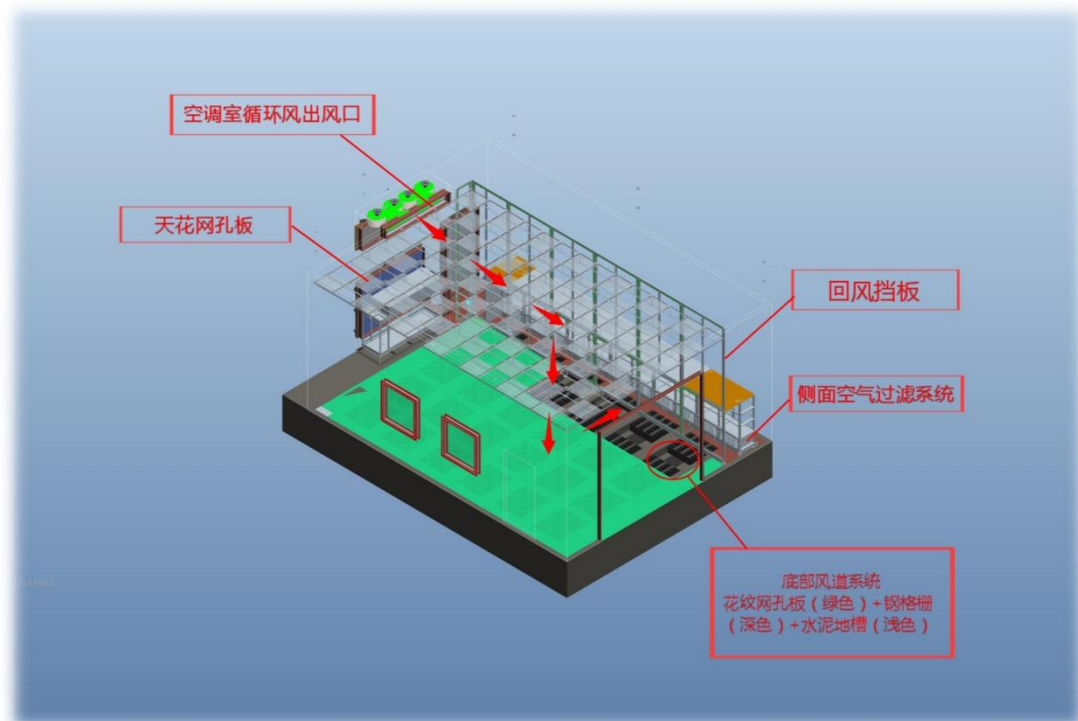


Figure 1 Air duct + floor trough return air + side internal air handling system

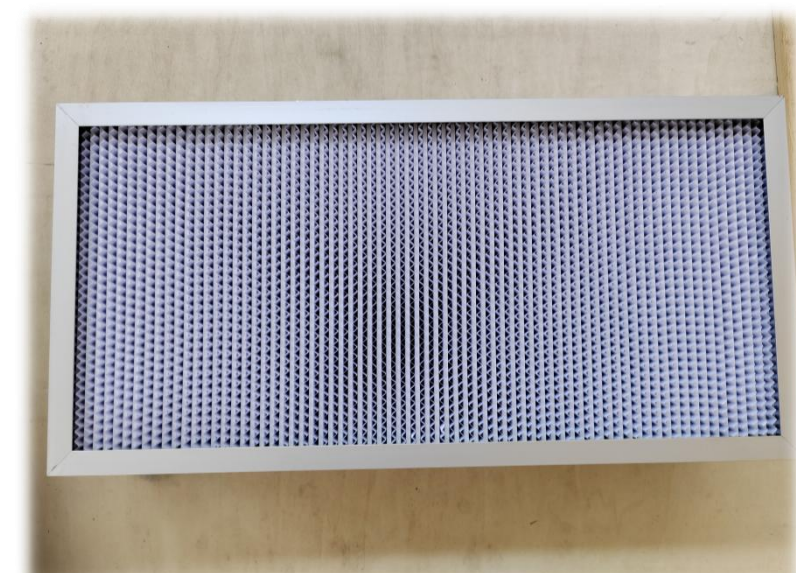
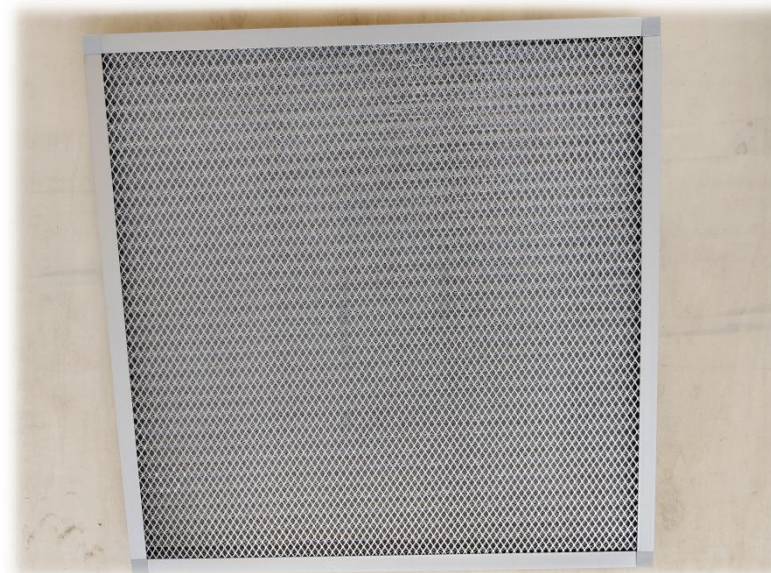
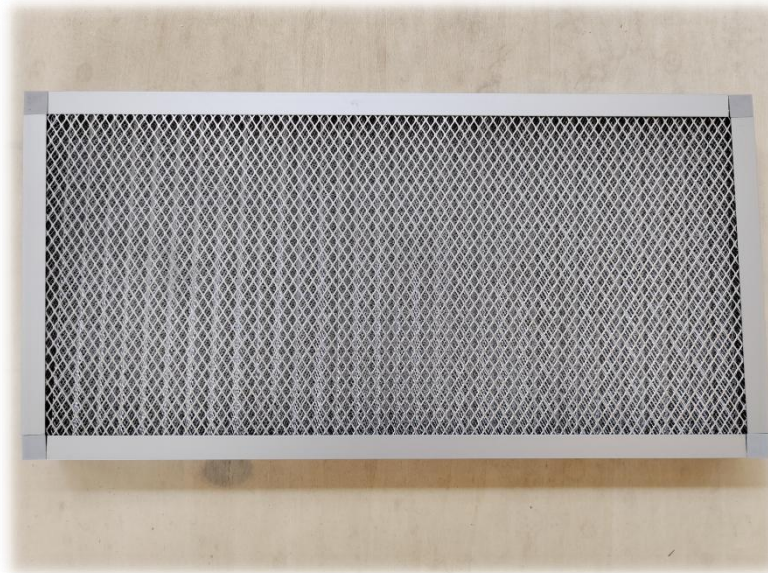


Steel grating + pattern plate

Product feature

• High efficiency/safe filter

- The air treatment VOC/formaldehyde unit uses imported products, with a theoretical treatment efficiency of up to 99.5%.
- VOC/formaldehyde treatment materials pass UL fire protection certification
- Non-toxic. No pollution. No bacteria/mold growth.
- The dust filter in the air handling unit is made of metal, a product of a Sino-Japanese joint venture, and has no flammable fire risk.
- The filter material in the air treatment device outside the test chamber is also an imported filter.
- The filter material has a large adsorption ratio of pollutants per unit weight, extending the service life of the filter material and ensuring a material replacement period of more than 2 years (the material used by SGS actually reaches a 5-year replacement period). The nitrogen oxide adsorption ratio is 6.6%, the toluene adsorption ratio is 20%, and the formaldehyde removal ratio is 2.5%.
- The side arrangement of the VOC filter material prevents water from entering the filter material when cleaning the storage board, and also extends the service life of the filter material.
- The imported filter material adsorbs a wide range of volatile organic compounds, and effectively adsorbs formaldehyde/VOC/hydrocarbons/nitrogen oxides.
- The internal air treatment unit and external air treatment device include VOC/formaldehyde filter materials, dust filters, and external holding structures. Make it form a whole for easy installation, transportation and disassembly.



Product feature

●Air treatment system: external fresh air supply system/internal low damping and large air volume air circulation system

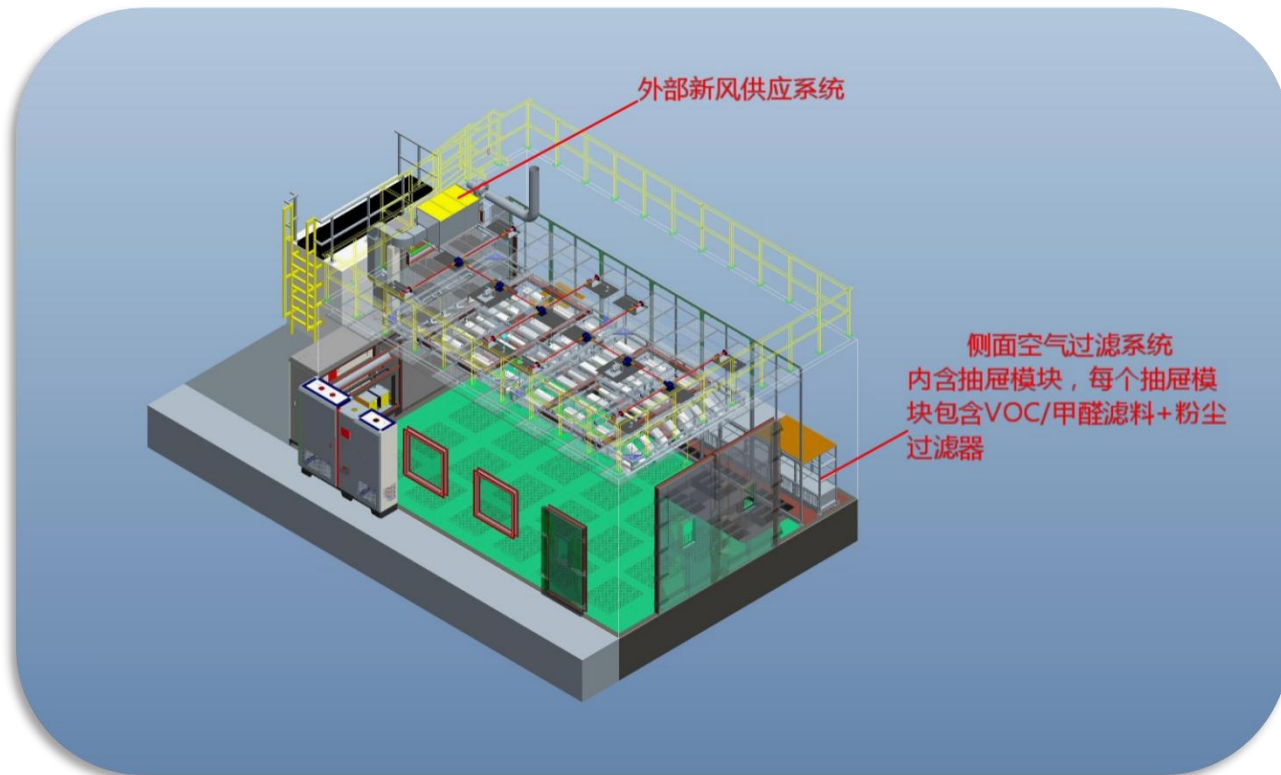


Figure 2 External fresh air supply system + internal side air filtration system

A/ The internal air circulation treatment device (imported VOC and formaldehyde treatment materials) is installed on the side of the test chamber, and all internal circulating air passes through the filter device.

B/ The fresh air system is installed in the air handling room (see Figure 2)

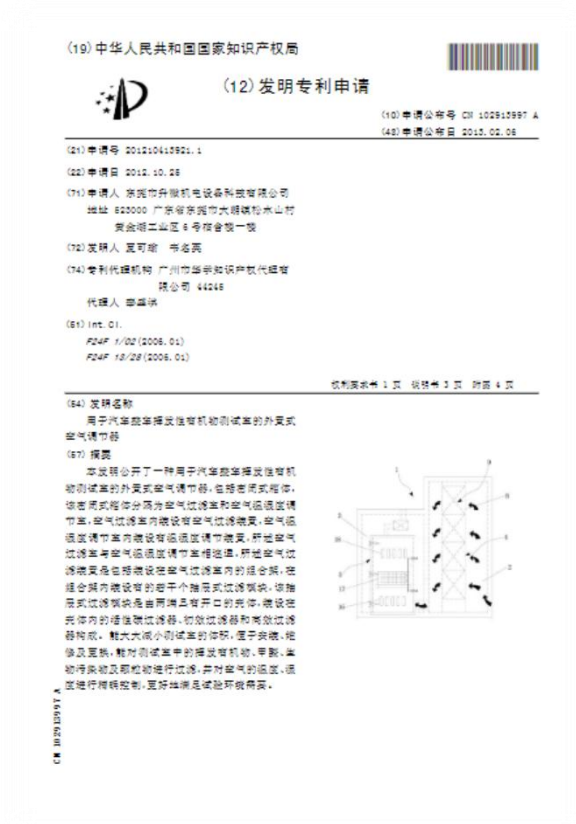
C/ Internal air circulation and fresh air intake, see air treatment diagram

D/ A total of 60-90 units are installed in the internal air circulation treatment device (the number can be increased or reduced according to design requirements, up to several hundred units). Each unit contains a set of imported formaldehyde/VOC filters and dust filters. The VOC and formaldehyde loading capacity of each unit (volume W295*H295*150MM) is convenient for manual replacement. In order to enhance the VOC/formaldehyde treatment effect, the number of air treatment units arranged is higher than the theoretical design.

Product feature

●Fresh air treatment device

4 units in a single group, each unit contains a set of imported formaldehyde/VOC filters and dust filters. VOC and formaldehyde loading per unit.



- **Equipment manufacturing process and requirements**

The storage boards, wires, activated carbon, dust filters, silencer cotton, insulation, etc. used in the entire set of equipment are all flame-retardant materials.



Some case reports

检测报告

报告编号: 017030
报告编号: C202307180355-1

GRGTTEST

GRG Metrology & Test Group Co., Ltd.

校准结果

RESULTS OF CALIBRATION

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Excellent background testing report

GRGTESI

检测报告

报告编号: 109279
报告编号: C201709139880-G2

VOC

采样信息:

样品编号	整车气相色谱-舱内
采样体积 DNPH (L)	12.0
采样体积 Tenax (L)	3.0

检测项目	结果	单位	方法检测限	GB/T 27630-2011 限值
甲醛	N.D.	mg/m ³	0.004	≤0.10
乙醛	N.D.	mg/m ³	0.004	≤0.05
丙酮	N.D.	mg/m ³	0.004	≤0.05
苯	N.D.	mg/m ³	0.004	≤0.11
甲苯	N.D.	mg/m ³	0.004	≤1.10
二甲苯	N.D.	mg/m ³	0.004	≤1.50
乙苯	N.D.	mg/m ³	0.004	≤1.50
苯乙烯	N.D.	mg/m ³	0.004	≤0.25
TVOC(C6-C16)	N.D.	mg/m ³	0.004	——

广州广电计量检测股份有限公司

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丙酮	N.D.	mg/m ³	0.004	≤0.05
苯	N.D.	mg/m ³	0.004	≤0.11
甲苯	0.012	mg/m ³	0.004	≤1.10
二甲苯	0.053	mg/m ³	0.004	≤1.50
乙苯	0.013	mg/m ³	0.004	≤1.50
苯乙烯	N.D.	mg/m ³	0.004	≤0.25
TVOC(C6-C16)	0.196	mg/m ³	0.004	——

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SGS

测试报告

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报告编号: C201709139880-G2

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检测报告

报告编号: 074485
报告编号: C201709203369

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检测报告

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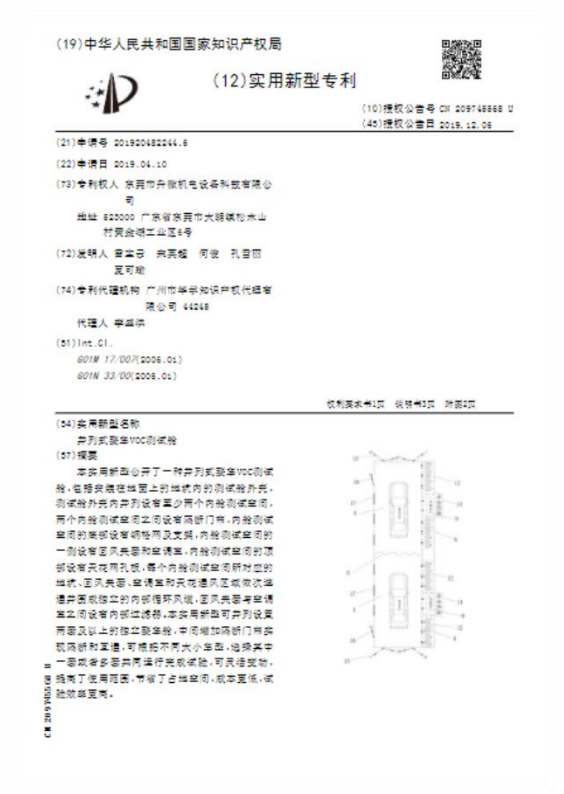
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The unique air duct structure makes the filter material have a long service life and excellent background.

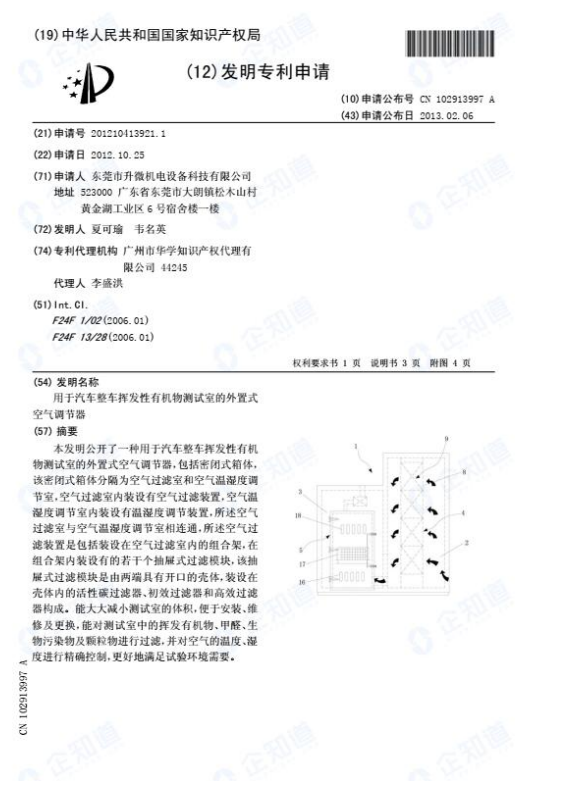


Air duct structure

Product innovation patent



Parallel vehicle VOC test chamber



Filter

Customer cases

