



Flammability (Open Flame) of Mattress Sets Test Apparatus



This apparatus is designed according to GB/T 34441-2017, it can test combustion performance of soft furniture mattress exposed to flame ignition source.

The test part of this equipment can meet the requirements of GB/T 20286, GA 111-1995, ISO 9705-2, GB/T 27904-2011 and GB/T 25207-2010 "Test Method for Solid Room Fire of Surface Products"

Model:AIC-9705

Standards

- GB/T 34441-2017
- GB/T 20286-2006
- GA 111-1995
- ISO 9705-2
- GB/T 27904-2011
- 16 CFR 1633.

Main features

1.Testing room: Testing room can be built as closed or open(CFR 1633 standard requires test room can be built as closed or open.)

Closed test room:

- ❖ The room is made of rock wool board. There are no openings except door and video surveillance windows
- ❖ The size of the test room is 3660 ± 25 mm in length, 3050 ± 25 mm in width and 2438 ± 25 mm in height.
- ❖ The door is 2032 ± 6 mm high and 965 ± 6 mm wide.
- ❖ Quartz glass monitor window, size 150x150mm.
- ❖ The fume hood is located outside the door (smoke outlet) to collect smoke;

Open test room:

- ❖ The fume hood is positioned directly above the sample and the bottom edge is 2400 mm away from the ground.
- ❖ Conical collector size: 3000mm X 3000mm, height 1000mm
- ❖ The conical collector has 900mm X 900mm X 900mm X 900mm cubic mixing chamber on the top, and the mixer is installed inside

2.The smoke exhaust pipe consists of a diversion section (x2), a straight section, a measuring section and a fan

- ❖ The measuring section is equipped with wind speed probe, thermocouple, optical system and sampler.
- ❖ Smoke exhaust capacity of fan is not less than $0.5\text{m}^3/\text{s}$

3.Control cabinet

- ❖ 19 inch standard cabinet, simple appearance, science and technology
- ❖ Control system center, integrated computer, display, analyzer, cold trap, control and data acquisition system.
- ❖ 19 inch display, Labview control software, electronic control and pneumatic configuration panel.
- ❖ Computer: CPU I3, memory 4G, hard disk 500G Win7/Win10 system

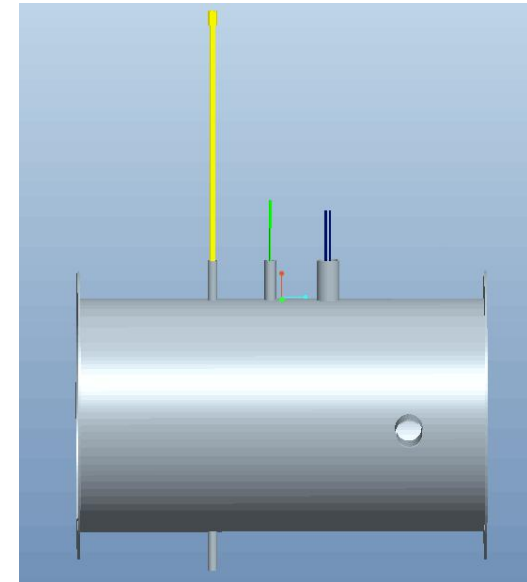
4.Equipped with imported analyzer (domestic analyzer is optional)

- ❖ Measurement of Gas Concentration of O_2 , CO_2 and CO .
- ❖ O_2 : The range is 0-100%, the error is less than 0.01%, the repeatability is less than 0.01%, and the response time is less than 7s.
- ❖ CO_2 : Range: 0-10%, error: 1% FS, repeatability < 2%, response time < 7s
- ❖ CO : range 0-1%, error 1% FS, repeatability < 1%, response time < 8s

5.Optical system, one-button 5-level automatic transmittance calibration device.Light source is 0.5mW Laser Generator.

- ❖ Imported Silicon-based Amplified Photoelectric Detector
- ❖ Imported filters (25%, 50%, 79%)
- ❖ Motor Driven Optical Wheel and Positioning Device

6.Wind Speed Control System



- ❖ Two-way probe, 304 stainless steel, 32mm in length and 14mm in diameter, separated into two separate chambers
- ❖ Imported Micro-differential Pressure Transmitter, Range 0-2000 Pa, Resolution 1%FS
- ❖ Three-phase frequency converter fan, closed-loop control of frequency converter, wind speed can be set, adjustable

7. Gas sampling system

- ❖ Sampler, 304 Stainless Steel
- ❖ Ash filter, secondary filter, precision filter (0.2um), three-stage filter system, remove impurity particles in sample gas.
- ❖ Refrigerator, compressor condenser, precise control of the temperature of gas collected at $4^{\circ}\text{C} \pm 1^{\circ}\text{C}$, condensation dewatering
- ❖ Deep filtration of moisture in sample gas by discolored silica gel
- ❖ Aspirator pump: gas sampling system adopts sampling diaphragm pump displacement of 10L/min~50L/min

8. Gas control system

- ❖ Burner: consisting of two T-shaped burners, surface burner and side burner

Surface burner

- Stainless steel pipe, diameter 12.7 mm, wall thickness 0.89 ± 0.5 mm.
- Burner length 306mm, sealed at both ends.
- There are 17 holes in the length of 136 mm on both sides of the central axis. The distance between holes is 8.5 mm, the diameter of holes is 1.45-1.53 mm, and the hole and the horizontal plane are 5° .

Side burner

- Stainless steel pipe, diameter 12.7 mm, wall thickness 0.89 ± 0.5 mm
- Burner length 255mm, sealed at both ends
- There are 14 holes in 110 mm length on both sides of the central axis, with a distance of 8.5 mm and an aperture of 1.45-1.53 mm.
- ❖ Mass Flow Controller
- Mass Flow Controller, control the Gas Flow Accurately.
- Surface burner, flow rate 12.9L/min.

- Side burner, flow rate 6.6L/min.
- Surface and side burner heat release rate total 27KW

- ❖ Ignition Controller
- 15KV High Voltage Pulse Electron Fire
- Flame detection function, ignition failure or flame extinction, the controller will automatically cut off the gas valve.

9. Weighing system (optional, standard GB 20286, GBT27904)

- ❖ The weighing system adopts C3 imported weighing sensor, and the weighing data is collected linearly and stored automatically.
- ❖ Waterproof design of weighing system to prevent damage to heavy system during fire fighting

10. Video recording

- ❖ 12 Megapixel HD Camera
- ❖ Video Recording Software

11. Software

- ❖ The interface of LABVIEW is modern, simple and rich in functions.
- ❖ The software adopts modular design, independent modules such as system setup, system calibration, test, test report, etc.
- ❖ The test data can be read by engineering units and physical units, and displayed by data windows and curves and charts.
- ❖ The data you want to view can be selected by checking.
- ❖ Provide preview function of test report, which can be printed or saved as Excel or PDF.
- ❖ Test parameters can be viewed and corrected.
- ❖ The test curve can be scaled and dragged.
- ❖ The original data, test results and test reports are provided.

Run test005.vi



T1(K)	T2(K)	T3(K)	T4(K)	T5(K)	T6(K)	T7(K)	T8(K)	T9(K)	风速0 (m/s)	风速1 (m/s)	风速2 (m/s)	风速3 (m/s)	风速4 (m/s)	平均风速 (m/s)

实验界面

采样时间(s)

实验时间(s)

总时间(s)



开始采样

开始实验

保存

复位

退出