FMVSS 302 Horizontal Flammability Tester

Automotive Interior Material Horizontal Burning Rate Tester

Standards: FMVSS 302, ISO 3795, DIN 75200, SAE J369, ASTM D5132, JIS D 1201, BSAU 16
Manufacturer: KingPo Test Equipment Co., Ltd. www.dgkingpo.com Tel: +86-769-81627526

1. Product Overview

The KingPo FMVSS 302 Horizontal Flammability Tester evaluates the burning behavior of automotive interior textiles and other materials by exposing a horizontally mounted specimen to a controlled flame. The test measures the time taken for the flame to travel between two marked points and calculates the burning rate to assess the material's flammability.

This Automotive Interior Flammability Tester is essential for verifying that vehicle interior materials, such as seat fabrics, headliners, door panels, and carpets, meet the flammability requirements of FMVSS 302. It helps automotive manufacturers and suppliers ensure compliance with safety regulations and reduce fire risks in vehicles.

2. Applicable Standards

- **FMVSS 302** — Federal Motor Vehicle Safety Standard No. 302: Flammability of interior materials
- **ISO 3795** — Road vehicles, and tractors and machinery for agriculture and forestry — Determination of burning behaviour of interior materials
- **DIN 75200** — Determination of burning behaviour of interior materials in motor vehicles
- **SAE J369** — Flammability of Polymeric Interior Materials — Horizontal Test Method
- **Other compatible standards** — ASTM D5132, JIS D 1201, BSAU 16

3. Test Purpose

In the FMVSS 302 test, a specimen is clamped horizontally in the test chamber. A flame with a height of 38 mm ± 2 mm is applied to the free end of the specimen for a specified time. The time taken for the flame to travel from the first mark (38 mm) to the second mark (292 mm) is recorded, and the burning rate is calculated to evaluate the material's flammability.

This horizontal burning test provides a standardized method to assess how quickly flame spreads across automotive interior materials under controlled conditions, helping ensure vehicle fire safety.

4. Key Features

- **Precise Flame Application** — Flame height adjustable to 38 mm ± 2 mm with a 9.5 mm diameter nozzle.
- **Standardized Specimen Clamp** — Specimen holder size of 360 mm × 100 mm with inner frame of 330 mm × 50 mm.
- **Clear Measurement Points** — Mark lines at 38 mm and 292 mm for accurate burning rate calculation.
- **Automatic Ignition** — Equipped with automatic ignition function for consistent and safe operation.
- **Stainless Steel Construction** — Corrosion-resistant chamber and components for long-term durability.
- **Integrated Design** — Combines combustion chamber and control system for convenient installation and operation.
- **Digital Display** — For monitoring time and temperature during testing.

5. Technical Specifications

Parameter	Specification	Notes
Applicable Standards	FMVSS 302, ISO 3795, DIN 75200, SAE J369, ASTM D5132, JIS D 1201, BSAU 16	Horizontal burning test for automotive interior materials
Burning Box Inner Size	381 mm × 203 mm × 356 mm	Designed for standardized horizontal flame spread testing
Flame Height	38 mm ± 2 mm	Applied from below the specimen for consistent ignition
Nozzle Diameter	9.5 mm	Precision burner nozzle for controlled flame application
Specimen Clamp Size	360 mm × 100 mm (Inner frame: 330 mm × 50 mm)	Holds specimen flat and securely during horizontal burning test

Lower Specimen Support	Wire spacing of 25 mm	Provides stable support while allowing flame exposure from below
Nozzle to Specimen Distance	19 mm	Fixed distance between burner nozzle and specimen surface
Measurement Points	38 mm and 292 mm from ignition point	Used to calculate horizontal burning rate
Ignition System	Automatic ignition	Ensures consistent flame application and improved operator safety
Test Environment	15–30°C, 30–80% RH	Recommended laboratory conditions for reliable and repeatable results
Chamber Material	Stainless steel	Corrosion resistant construction for long-term durability
Control & Display	Digital display for time and temperature	Allows convenient monitoring and recording of test parameters

6. Typical Test Procedure

1. Condition the specimen according to the standard requirements.
2. Clamp the specimen horizontally in the specimen holder.
3. Adjust the burner to achieve a flame height of 38 mm ± 2 mm.
4. Apply the flame to the free end of the specimen for the specified time.
5. Record the time for the flame to travel from the 38 mm mark to the 292 mm mark.
6. Calculate the burning rate and document the results.

7. Applications

- Automotive Interior Material Manufacturers — Horizontal flammability testing of seat fabrics, headliners, carpets, door panels, and other vehicle interior textiles
- Testing Laboratories — FMVSS 302 and ISO 3795 compliance testing for automotive interior materials
- Automotive OEMs and Suppliers — Evaluating and approving interior materials from suppliers
- Certification Bodies — Assessing the flammability performance of automotive interior materials for type approval
- Research Institutions — Studying the flame spread behavior of new automotive textiles, coatings, and composite materials

8. Standard Configuration

The standard system typically includes:

- Stainless steel combustion chamber
- Precision burner system with needle valve for flame adjustment
- Standardized specimen clamping mechanism (360 mm × 100 mm)
- Automatic ignition system
- Digital display for time and temperature
- Included flame height gauges (38 mm and 22 mm)

Note: Suitable for testing textiles, leather, plastics, foams, and composite materials used in automotive interiors.

9. Ordering Information

To provide the most suitable configuration, please confirm the following when requesting a quotation:

- Primary material types to be tested (e.g., textiles, foams, composites)
- Any need for additional fixtures or automation features
- Calibration or extended documentation requirements

KingPo Test Equipment Co., Ltd.

Hengkeng Industrial Zone, Dongguan, Guangdong, China
Tel: +86-769-81627526 | Website: www.dgkingpo.com | Email: sales@dgkingpo.com

Precision Metrology • Regulatory Compliance • Engineering Reliability