ISO 6941 Vertical Burning Test Chamber

Flame Spread Tester for Textiles and Coated Materials

Standard: ISO 6941:2003 (Vertical flame spread properties of textiles)
Manufacturer: KingPo Test Equipment Co., Ltd. www.dgkingpo.com Tel: +86-769-81627526

1. Product Overview

The KingPo ISO 6941 Vertical Burning Test Chamber is used to evaluate the vertical flame spread behavior of textile fabrics, coated materials, and automotive interior materials under controlled flame application conditions. It measures how quickly flame spreads on vertically mounted specimens and provides reliable testing support for textile flammability performance evaluation.

The chamber applies a defined flame for 10 seconds to the surface or bottom edge of a vertically oriented specimen and records the time for the flame to reach successive marker threads. It is widely used by textile manufacturers, testing laboratories, and quality control departments for evaluating flammability of coated fabrics, multi-layer textiles, and industrial fabrics.

2. Applicable Standards

- **ISO 6941:2003** — Textile fabrics — Burning behaviour — Measurement of flame spread properties of vertically oriented specimens

3. Test Purpose

According to ISO 6941, a defined flame from a specified burner is applied for 10 seconds to the surface or bottom edge of a vertically oriented textile specimen. The time taken for the flame front to travel between three marker threads positioned at fixed distances from the igniting flame is recorded.

This method evaluates flame spread rate and afterflame/afterglow behavior of textile materials under controlled conditions, helping manufacturers and laboratories assess the fire performance of textiles used in apparel, upholstery, curtains, bedding, and automotive interiors.

4. Key Features

- **Multiple Adjustable Burning Angles** — 0°, 30°, 45°, 60°, and 90° for flexible testing requirements.
- **Adjustable Flame Height** — 5 mm to 100 mm with precise flow meter regulation.
- **Automatic Ignition System** — Ensures consistent and repeatable test initiation.
- **Marker Thread System** — Three threads positioned at 244 mm, 394 mm, and 544 mm from the bottom for accurate flame spread measurement.
- **Spacious Test Chamber** — Specimen more than 300 mm from inner walls to ensure proper airflow and minimize external interference.
- **High-Precision Timing** — 0–9999 × 0.1 s resolution for accurate recording of flame spread times.
- **Robust & User-Friendly Design** — Stable gas flow control, high-quality components, and easy parameter adjustment.

5. Technical Specifications

Parameter	Specification	Notes
Applicable Standard	ISO 6941:2003	Vertical flame spread of textiles
Burning Angles	0°, 30°, 45°, 60°, 90°	Adjustable
Flame Height	5 – 100 mm	Adjustable via flow meter
Marker Thread Positions	244 mm, 394 mm, 544 mm from bottom	Three threads for flame spread measurement
Ignition System	Automatic ignition	Consistent test initiation
Gas Type	Propane, Butane, or Propane-Butane mixture	Flexible gas options
Specimen Holder	560 × 170 mm with 12 mounting pins	Suitable for various specimen types
Chamber Design	Specimen > 300 mm from inner walls	Ensures proper airflow
Timing Device	0 – 9999 × 0.1 s	High precision
Power Supply	220V AC, 50Hz, 3A	Customizable

6. Typical Test Procedure

1. Mount the specimen vertically on the specimen holder.
2. Position the marker threads at the specified distances.
3. Adjust the flame height and angle as required by the test method.
4. Apply the flame automatically for 10 seconds to the specimen surface or bottom edge.
5. Record the time for the flame to reach each marker thread.
6. Document afterflame/afterglow behavior and calculate flame spread rate if required.

7. Applications

- Textile and Coated Fabric Manufacturers — In-house vertical flame spread testing for apparel, upholstery, and coated materials
- Third-Party Testing Laboratories — ISO 6941 compliance testing and formal test reports
- Quality Control Departments — Routine flammability verification of fabrics, garments, curtains, and bedding
- Automotive Interior Material Suppliers — Assessing flame spread behavior for vehicle interiors (supports UN ECE R118)
- Research Institutions & Universities — Studying flame propagation, afterflame, and afterglow behavior of novel textile structures

8. Standard Configuration

The standard system typically includes:

- Automatic ignition system
- Adjustable flame height control (5 mm to 100 mm)
- Marker thread system (positions at 244 mm, 394 mm, 544 mm)
- Specimen holder (560 × 170 mm with 12 mounting pins)
- Timing device (0–9999 × 0.1 s)
- Gas flow regulator and flow meter

Note: Spacious test chamber with robust construction. Suitable for single-layer fabrics, coated fabrics, multi-layer textiles, quilted products, and sandwich-type materials.

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., coated fabrics, automotive textiles)
- Preferred burning angles and flame height range
- Gas type preference (Propane, Butane, or mixture)
- Any need for additional accessories or automation features

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

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