FMVSS 302

The Federal Motor Vehicle Safety Standard No. 302

THE BENCHMARK IN FIRE TESTING

FTT FMVSS 302

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The FTT FMVSS 302 is manufactured according to the Federal Motor Vehicle Safety Standard No. 302. The FMVSS 302 specifies the burn resistance requirements for materials used in the occupant compartments of motor vehicles (i.e. passenger cars, multipurpose passenger vehicles, trucks and buses). This is to reduce the deaths and injuries to motor vehicle occupants caused by vehicle fires, especially those originating in the interior of a vehicle from sources such as matches or cigarettes.

The FTT FMVSS 302 consists of: -

- Stainless Steel combustion chamber
- Gas controls and safety flash back device
- Ignition source with fine adjustment valve
- Specimen holder

Combustion Chamber

The combustion chamber is an enclosure constructed from stainless steel, with a heat resistant window at the front for observation.

The test is conducted within the chamber which protects the test specimens from drafts. The interior of the cabinet is 381mm long, 203mm deep and 356mm high. It has a high temperature resistant glass observation window which can be easily removed for cleaning, a thermal warning indicator to warn of hot surfaces, an opening to permit insertion of the specimen holder from the right hand side of the unit, Bunsen burner, needle valve to control the gas flow, safety flashback arrestor, and specimen support rails. For ventilation, the chamber is elevated 10mm by feet fitted to the base of the chamber. Additionally, the chamber roof is raised by 13mm to allow ventilation.

Gas Controls

Gas flow is controlled by a needle valve outside the chamber to produce flame stability. Connection is made at the top of the flash back arrestor, which is a standard 6mm hose barb.

Ignition Source

A choice of Bunsen burner tubes is provided. The tube marked with ISO has a 9.5mm inside diameter and is suitable for the ISO 3795 test. The tube marked with FM has a 10mm inside diameter and is suitable for the FMVSS test. The Bunsen burner tube can be interchanged and cleaned very easily. A needle valve (located externally) is used to adjust the flame height to 38mm. The gas supplied to the burner should have a calorific value of approximately 38MJ/m^3. The suggested gas supply is natural gas or a flame temperature equivalent.

Specimen Holders

The test specimen is inserted between two matching U-shaped stainless steel frames 25mm wide and 10mm high. The interior dimension of the ISO 3795 U-shaped frame is 50mm wide by 330mm long. The FMVSS U-shaped frame is 2" wide by 12" long. A specimen that softens and bends at the flaming end so as to cause erratic burning is kept horizontal by supports consisting of thin, heat-resistant wires 0.25mm diameter, spanning the width of the U-shaped frame under the specimen at 25mm intervals.

Results

The burn rate is calculated from the following formula:-

$$B = 60 \times \left(\frac{D}{T}\right)$$

where:

B = Burn rate (mm/min)
D = Length the flame travels (mm)
T = Time for the flame to travel D millimetres (s)

Key Advantages

- Fully compliant to FMVSS 302 and ISO 3795 requirements depending on which sample holder is used.
- Complete and ready to use system.
- Low maintenance requirement.

Technical Specification

Measuring Principle	Horizontal Flammability Test
Operating Temperature	23 ± 5°C, non-condensing environment
Bunsen Burner Tubes Diameter	9.5mm & 10mm supplied
Cabinet Dimensions (interior)	381mm (W) x 203mm (D) x 356mm (H)
System Dimensions	450mm (W) x 205mm (D) x 390mm (H)
Optional sample holders	FMVSS & ISO 3795 (specify at time of order)

Services

Condition	Requirement
Test Room	The FMVSS should be situated in a draught free environment at 23 ± 5°C and a relative humidity of 50 ± 20%.
Gas Supply	A supply of natural gas. In order to obtain flame stability the gas pressure shall be between 10kPa and 50kPa.
Hood	The combustion chamber should be situated under a suitably ventilated hood.

Due to the continuous development policy of FTT technical changes could be made without prior notice.

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