

---

# INTERNATIONAL STANDARD



# 3795

---

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

---

## Road vehicles — Determination of burning behaviour of interior materials for motor vehicles

*Véhicules routiers — Détermination des caractéristiques de combustion des matériaux intérieurs des automobiles*

First edition — 1976-08-15

STANDARDSISO.COM : Click to view the full PDF of ISO 3795:1976

---

UDC 629.113 : 536.468

Ref. No. ISO 3795-1976 (E)

**Descriptors** : road vehicles, composite materials, tests, destructive tests, fire tests, measurement, fire resistance, burning rate.

Price based on 6 pages

## FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3795 was drawn up by Technical Committee ISO/TC 22, *Road vehicles*, and was circulated to the Member Bodies in March 1975.

It has been approved by the Member Bodies of the following countries :

Austria	Iran	South Africa, Rep. of
Belgium	Ireland	Spain
Brazil	Italy	Sweden
Bulgaria	Japan	Turkey
Czechoslovakia	Mexico	U.S.A.
Finland	Netherlands	Yugoslavia
Germany	Poland	
Hungary	Portugal	

The Member Bodies of the following countries expressed disapproval of the document on technical grounds :

Australia  
France

# Road vehicles – Determination of burning behaviour of interior materials for motor vehicles

## 0 INTRODUCTION

Evaluation of burning behaviour of interior material is based on the assumption that a fire in the passenger compartment is unlikely to occur when the burning rate of the interior material under the action of a small flame is zero or very small.

In the framework of international regulations for motor vehicle safety prepared by the competent groups of the Economic Commission for Europe (ECE/UNO), ISO had been requested to develop a method for the determination of the burning behaviour of interior materials in motor vehicles. Extensive information on existing test methods was collected and evaluated. In view of safety standards which are already mandatory, considerations were based primarily on the test procedure defined in US-FMVSS 302.

Considerable attention was devoted to the problem of ventilation of the combustion chamber. Two series of comparative tests were conducted to investigate different design variations.

After extended discussions, it was decided to incorporate the combustion chamber described in this International Standard.

Furthermore, it was decided to require the presence of supporting wires as part of the standard equipment in order to avoid subjective interpretations of sample behaviour by the test personnel.

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for determining the horizontal burning rate of materials used in the occupant compartment of motor vehicles (for example passenger cars, lorries (trucks), estate cars, coaches) after exposure to a small flame.

This method permits testing of materials and parts of the vehicle interior equipment individually or in combination up to a thickness of 13 mm. It is used to judge the uniformity of production lots of such materials with respect to their burning behaviour.

Because of the many differences between the real world situation (application and orientation within vehicle interior, conditions of use, ignition source, etc.) and the precise test conditions prescribed herein, this method cannot be considered as suitable for evaluation of all true in-vehicle burning characteristics.

## 2 DEFINITIONS

**2.1 burning rate :** The quotient of the burnt distance measured according to this International Standard and the time taken to burn this distance.

It is expressed in millimetres per minute.

**2.2 composite material :** A material composed of several layers of similar or different materials intimately held together at their surfaces by cementing, bonding, cladding, welding, etc.

When different materials are connected together intermittently (for example, by sewing, high-frequency welding, riveting), then in order to permit the preparation of individual samples in accordance with clause 5, such materials will not be considered as composite materials.

**2.3 exposed side :** The side which is facing towards the occupant compartment when the material is mounted in the vehicle.

### 3 PRINCIPLE

A sample is held horizontally in a U-shaped holder and is exposed to the action of a defined low-energy flame for 15 s in a combustion chamber, the flame acting on the free end of the sample. The test determines if and when the flame extinguishes or the time in which the flame passes a measured distance.

### 4 APPARATUS

**4.1 Combustion chamber** (figure 1), preferably of stainless steel and having the dimensions given in figure 2. The

front of the chamber contains a flame-resistant observation window, which may cover the front and which can be constructed as an access panel.

The bottom of the chamber has vent holes, and the top has a vent slot all around. The combustion chamber is placed on four feet, 10 mm high.

The chamber may have a hole at one end for the introduction of the sample holder containing the sample; in the opposite end, a hole is provided for the gas line. Melted material is caught in a pan (see figure 3) which is placed on the bottom of the chamber between vent holes without covering any vent hole area.

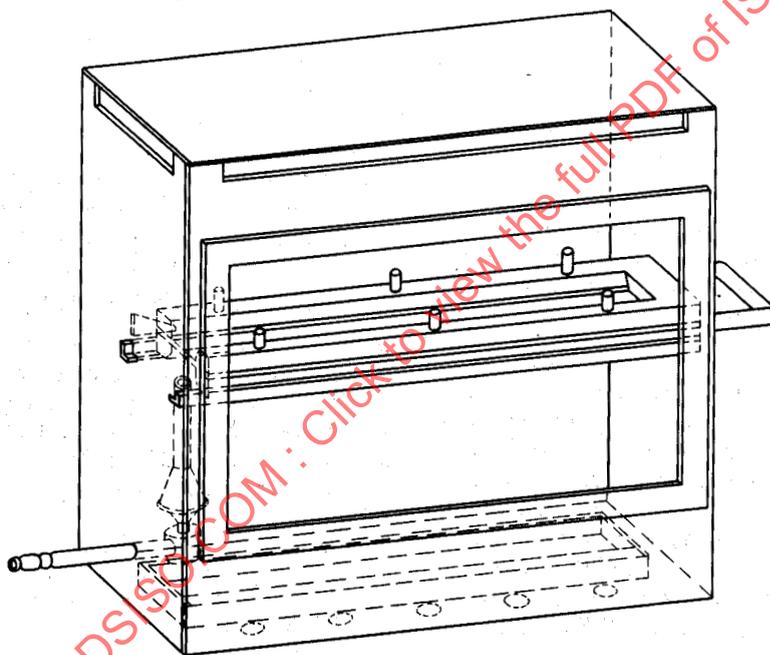


FIGURE 1 — Example of combustion chamber with sample holder and drip tray

Dimensions in millimetres  
Tolerances according to ISO 2768

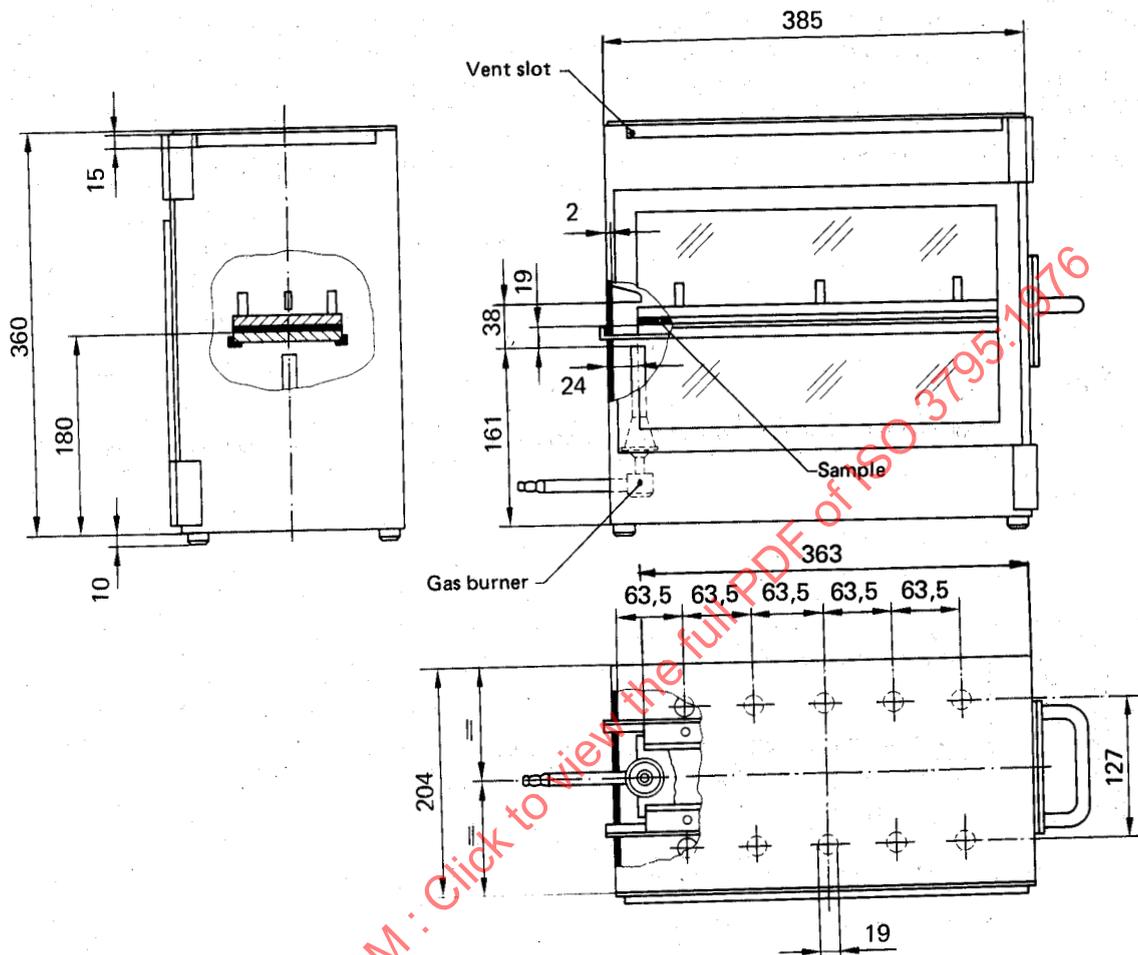


FIGURE 2 – Example of combustion chamber

Dimensions in millimetres  
Tolerances according to ISO 2768

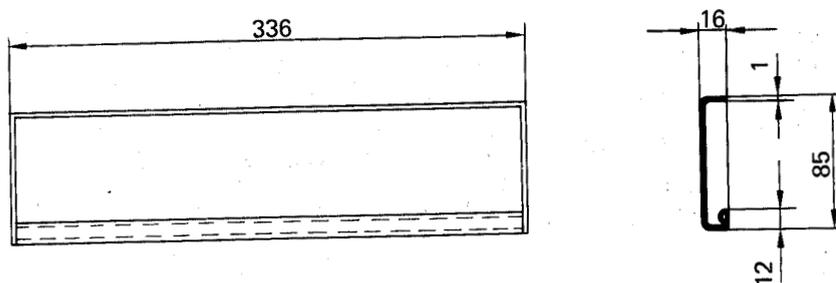


FIGURE 3 – Typical drip pan

4.2 Sample holder, consisting of two U-shaped metal plates or frames of corrosion-proof material. Dimensions are given in figure 4.

The lower plate is equipped with pins, the upper one with corresponding holes in order to ensure a consistent holding of the sample. The pins also serve as the measuring points at the beginning and end of the burning distance.

A support shall be provided in the form of 0,25 mm

diameter heat resistant wires spanning the frame at 25 mm intervals over the bottom U-shaped frame (see figure 5).

The plane of the lower side of samples shall be 178 mm above the floor plate. The distance of the front edge of the sample holder from the end of the chamber shall be 22 mm; the distance of the longitudinal sides of the sample holder from the sides of the chamber shall be 50 mm (all inside dimensions). (See figures 1 and 2.)

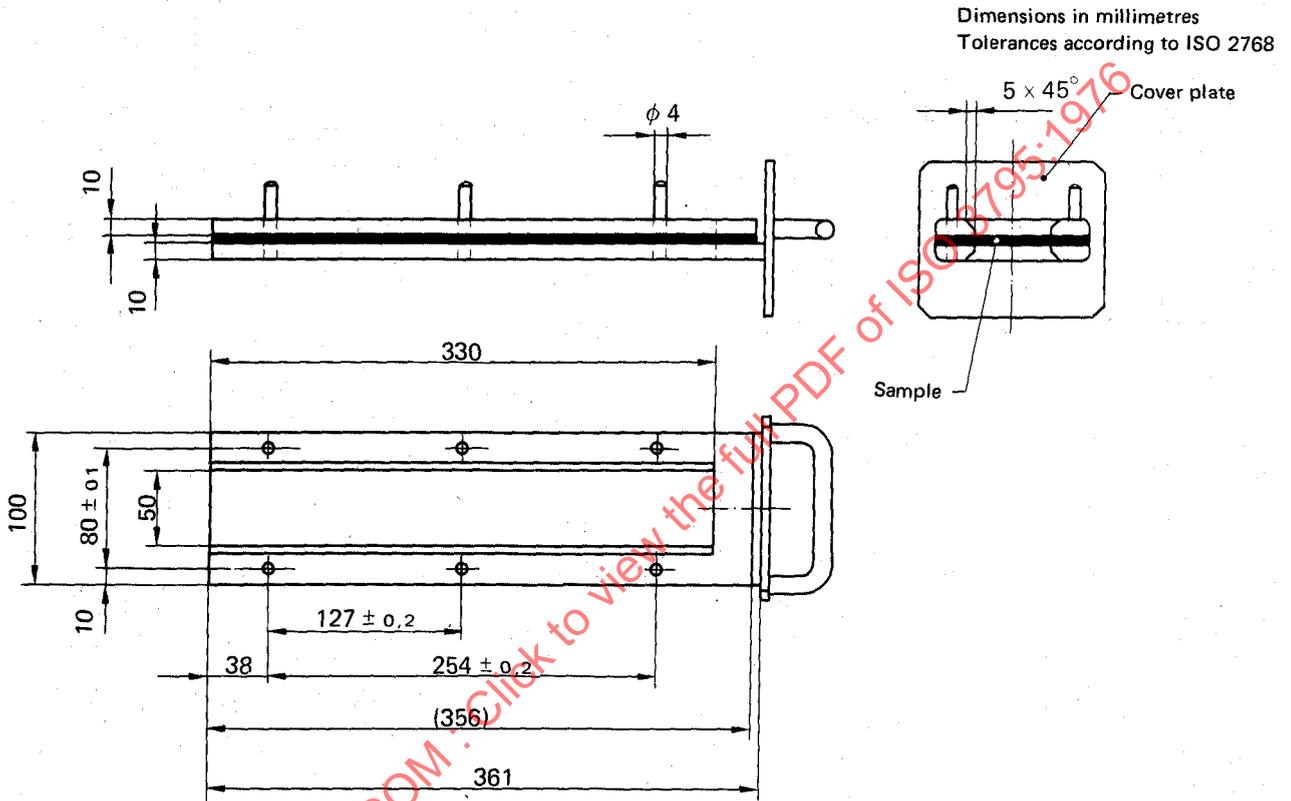


FIGURE 4 – Example of sample holder

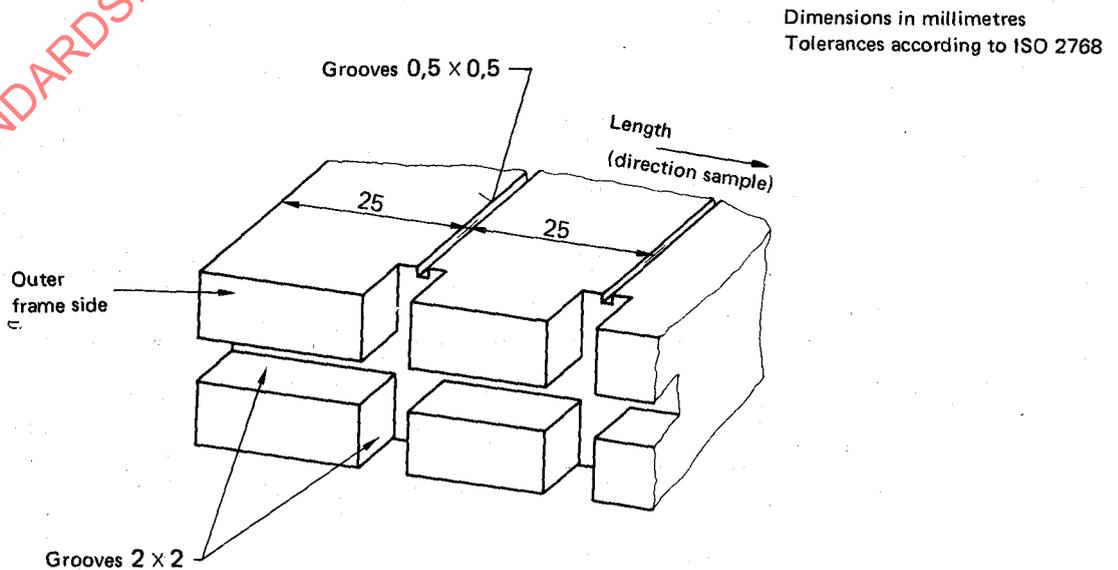


FIGURE 5 – Example of section of lower U-frame design for wire support facility