SLOVENSKI STANDARD
SIST ISO 5925-1:2018/A1:2018

01-december-2018

Požarni preskusi - Dimna vrata z opremo - 1. del: Preskus tesnosti pri sobni in srednji temperaturi - Dopolnilo A1 (ISO 5925-1:2007/Amd 1:2015)

Fire tests — Smoke-control door and shutter assemblies — Part 1: Ambient-and medium -temperature leakage tests - Amendment 1 (ISO 5925-1:2007/Amd 1:2015)

Ta slovenski standard je istoveten z: **ISO 5925-1:2007/Amd 1:2015**

ICS:

13.220.50	Požarna odpornost gradbenih materialov in elementov	Fire-resistance of building materials and elements
91.060.50	Vrata in okna	Doors and windows

SIST ISO 5925-1:2018/A1:2018 **en**

INTERNATIONAL STANDARD

ISO 5925-1

Second edition
2007-09-15

AMENDMENT 1
2015-02-01

Fire tests — Smoke-control door and shutter assemblies —

Part 1: Ambient- and medium-temperature leakage tests

AMENDMENT 1

Essais au feu — Assemblages porte et volet pare-fumée —

Partie 1: Essais de fuite à température ambiante et moyenne

AMENDEMENT 1

Reference number
ISO 5925-1:2007/Amd.1:2015(E)

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Published in Switzerland

Foreword

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The committee responsible for this document is ISO/TC 92, *Fire safety*, Subcommittee SC 2, *Fire containment*.

Fire tests — Smoke-control door and shutter assemblies —

Part 1:
Ambient- and medium-temperature leakage tests

AMENDMENT 1

Page 10, Annex B

Add a new clause, B.3, as follows:

B.3 Methods for measuring leakage rates

Using the equipment described in B.2, one of the two following methods shall be used for measuring leakage rates.

B.3.1 Method A

An inlet and an outlet pipe are connected to the chamber in Figure 1 on opposite ends of the chamber (in the left wall and right wall of the chamber at mid-height). The outlet pipe shall be fitted with a valve to control chamber pressure. The air flow rate shall be measured in each pipe using apparatus suitable for this purpose. For example, use a hot wire anemometer traversed across the pipe inside diameter to determine the average air speed (V_{avg}) in the pipe and a thermometer to measure air temperature for calculations to standard conditions). The airflow rate Q is expressed as

V_{avg} (m/hr) × area of pipe (m^2) = Q (m^3/hr)

in each pipe. The air-speed measurement shall be made at least nine pipe diameters from the air flow source and a minimum of five pipe diameters from the chamber wall. The pipe diameter shall be sized to allow for accurate traverse averaging of the air speed instrument (at least 75 mm). The total leakage rate is $Q_t = Q_{in}$ (sealed) − Q_{out} (sealed). Before or after the test, the chamber leakage rate shall be determined by hermetically sealing the chamber opening (EPDM rubber sheet roofing mounted in a frame, then installed and sealed with silicone caulk is a suitable hermetic seal) where the door and framing is normally installed, and measuring $Q_a = Q_{in} - Q_{out}$.

The specimen leakage rate is then calculated as $Q_d = Q_t - Q_a$.

Method A will require more robust heating since the inlet air is escaping from the outlet pipe. Additionally, the air from the outlet is significantly hotter than the inlet air and care must be taken to account for calculating the flow rates corrected for temperature to standard conditions. Method B avoids these issues.

B.3.2 Method B

A single inlet pipe is installed on one wall of the chamber. Air flow rate shall be measured in the pipe using a suitable apparatus. For example, use a hot wire anemometer traversed across the pipe inside diameter to determine the average air speed (V_{avg}) in the pipe and a thermometer to measure air temperature for calculations to standard conditions. The airflow rate Q is expressed as

V_{avg} (m/hr) × area of pipe (m^2) = Q (m^3/hr)

in the pipe. The air speed measurement shall be made at least nine pipe diameters from the air flow source and a minimum of five pipe diameters from the chamber wall. The pipe diameter shall be sized to allow accurate traverse averaging of the air speed instrument (at least 75 mm). The air flow source shall have either a control valve or a bleed T to control air pressure to the chamber. The total leakage rate $Q_t = Q_{in}$. Before or after the test, the chamber leakage rate shall be determined by hermetically sealing the chamber opening (EPDM rubber sheet roofing mounted in a frame, then installed and sealed

with silicone caulk is a suitable hermetic seal) where the door and framing is normally installed, and measuring $Q_a = Q_{in}$ (sealed).

The specimen leakage rate is then calculated as $Q_d = Q_t - Q_a$.

The inlet control valve method of controlling pressure has one problematic issue. If the air source is of higher pressure than the test pressure, one shall eventually close the valve to avoid over-pressurizing the chamber then open slightly while the specimen leaks and continue this process throughout the test. This does not happen with specimens that exhibit a high leakage rate or a leaky chamber. The preferred method is to leak excess pressure at the inlet where the air source connects to the inlet pipe using a T connection. The turbulence produced at the T does not affect the flow rate measurement nine pipe diameters downstream. Additionally, an air source consisting of a variac connected to an air conditioning blower allows one to control flow rate very precisely instead of using a simple valve on the T bleed leg. One shall experiment with T bleed leg pipe diameters to obtain optimal precise control of test pressures.