

Approval Standard

Rack Storage Flue Spacers

Class Number 6917
August 2013



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Foreword

The FM Approvals certification mark is intended to verify that the products and services described will meet stated conditions of performance, safety and quality useful to the ends of property conservation. The purpose of Approval Standards is to present the criteria for FM Approval of various types of products and services, as guidance for FM Approvals personnel, manufacturers, users and authorities having jurisdiction. Products submitted for certification by FM Approvals shall demonstrate that they meet the intent of the Approval Standard, and that quality control in manufacturing and/or applications shall ensure a consistently uniform and reliable product or service. Approval Standards strive to be performance-oriented and to facilitate technological development.

For examining equipment, materials and services, Approval Standards:

- a) must be useful to the ends of property conservation by preventing, limiting or not causing damage under the conditions stated by the Approval listing; and
- b) must be readily identifiable.

Continuance of Approval and Listing depends on compliance with the Approval Agreement, satisfactory performance in the field, on successful re-examinations of equipment, materials and services as appropriate, and on periodic follow-up audits of the manufacturing facility or service/application.

FM Approvals LLC reserves the right in its sole judgment to change or revise its standards, criteria, methods or procedures.

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1 INTRODUCTION

1.1 Purpose

This standard states Approval requirements for rack storage flue spacers. Rack storage of combustible commodities creates a substantial hazard and potential for large fires should ignition occur in the storage area due to several issues such as large amounts of fuel that can be concentrated in racks, uninhibited airflow throughout a stable rack array, and the potential for shielding of commodity from overhead sprinklers. Solid shelves inhibit vertical fire growth, promote horizontal fire spread and can prevent sprinkler water from penetrating down through a rack to the fire area. This also limits the pre-wetting of combustibles. Lack of adequate flue spaces within rack storage arrangements can allow a fire to grow in a manner similar to a fire with solid shelves by impeding sprinkler water flow down to the seat of the fire and promoting fire spread to combustibles on adjacent shelves. The generated heat can cause excessive numbers of sprinkler heads to activate which will deplete the fire protection water supply while the fire continues to grow. Once the fire breaks out of the area of origin, it could be too large in intensity for the sprinkler systems to be effective. Presence of inadequate flue spaces within a rack storage arrangement may be considered a fire hazard and, if not properly addressed, may require special protection such as in-rack sprinklers for potential fire situations.

1.2 Scope

1.2.1 This standard sets the performance requirements of rack storage flue spacers in regards to their ability to maintain a minimum 6 in. (76 mm) wide transverse flue space within a rack structure under various anticipated storage rack loadings. All requirements in this standard shall be met in order for these products to be eligible to receive FM Approvals certification.

1.2.1.1 Two (2) different loading levels have been considered, regular duty and heavy duty.

1.2.2 This standard is intended to evaluate only those hazards investigated and is not intended to determine the suitability for all end use conditions of these products. Conditions under which these products are used vary widely. For example, these materials may be subjected to environments, storage arrangements, and fuel loadings not anticipated by this standard.

1.2.3 This standard does not address the issue of rack storage flue spacers during natural hazard events such as seismic occurrences.

1.2.4 Approval criteria shall include, but are not limited to, performance requirements, marking requirements, an examination of manufacturing facilities, an audit of quality assurance procedures, and a follow-up program.

1.3 Basis for Requirements

1.3.1 The requirements of this standard are based on experience, research and testing and/or the standards of FM Approvals and other organizations. The advice of manufacturers, users, trade associations and loss control specialists was also considered.

1.3.2 The requirements of this standard reflect tests and practices used to examine characteristics of rack storage flue spacers for the purpose of obtaining FM Approval. These requirements are intended primarily as guides and strict conformity is not always mandatory. Rack storage flue spacers

having characteristics not anticipated by this standard may be FM Approved if performance equal, or superior, to that required by this standard is demonstrated, or if the intent of the standard is met. Alternatively, rack storage flue spacers that meet all the requirements identified in this standard may not be FM Approved if other conditions that adversely affect performance exist or if the intent of this standard is not met.

1.4 Basis for Approval

Approval is based upon satisfactory evaluation of the product and the manufacturer in the following major areas:

1.4.1 Examination and tests on production samples shall be performed to evaluate

- the suitability of the product for its intended use;
- the proper operation and performance of the product as specified by the manufacturer and required by FM Approvals, and as far as practical;
- the durability and reliability of the product.

1.4.2 An examination of the manufacturing facilities and audit of quality control procedures to evaluate the manufacturer's ability to consistently produce the product as examined and tested, and the marking procedures used to identify the product. These examinations are repeated as part of the FM Approvals' quality control follow-up program.

1.5 Basis for Continued Approval

Continued Approval is based upon:

- production or availability of the product as FM Approved;
- the continued use of acceptable quality assurance procedures;
- satisfactory field experience;
- compliance with the terms stipulated in the Approval report;
- satisfactory re-examination, if deemed necessary, of production samples for continued conformity to requirements; and
- satisfactory Surveillance Audits conducted as part of FM Approvals' product follow-up program.

Also, as a condition of retaining Approval, manufacturers may not change a product or service without prior authorization by FM Approvals.

1.6 Effective Date

1.6.1 The effective date of an Approval Standard mandates that all products tested for Approval after the effective date shall satisfy the requirements of that standard. Products Approved under a previous edition shall comply with the new version by the effective date or else forfeit Approval. The effective date shall apply to the entire Approval Standard, or, where so indicated, only to specific paragraphs of the standard.

1.6.2 The effective date for compliance with all requirements is January 1, 2014.