

NOT to be distributed outside of FMGlobal except by CUSTOMER.

# APPROVAL REPORT

**MODEL VK500 AND VK520 FUSIBLE TYPE  
SUPPRESSION-MODE (ESFR) PENDENT AND  
UPRIGHT AUTOMATIC SPRINKLERS WITH A  
NOMINAL DISCHARGE COEFFICIENT OF 14.0  
GAL/MIN/(PSI)<sup>1/2</sup> WITH DESIGN MODIFICATIONS**

**Prepared for:**

**The Viking Corporation  
210 North Industrial Park Road  
Hastings, MI 49058**

**Project ID. 3012261  
Class 2008  
Date: 8 March 2002**

Factory Mutual Research Corporation  
1151 Boston-Providence Turnpike  
P.O. Box 9102  
Norwood, MA 02062

**MODEL VK500 AND VK520 FUSIBLE TYPE  
SUPPRESSION-MODE (ESFR) PENDENT AND UPRIGHT  
AUTOMATIC SPRINKLERS WITH A NOMINAL DISCHARGE COEFFICIENT OF  
14.0 GAL/MIN/(PSI)<sup>1/2</sup> WITH DESIGN MODIFICATIONS  
(MODIFICATION)  
8 March 2002**

from

**THE VIKING CORPORATION  
210 NORTH INDUSTRIAL PARK ROAD  
HASTINGS, MI 49058**

**I INTRODUCTION**

- 1.1 The Viking Corporation requested an Approval examination of their Model VK500 and VK520 fusible type suppression-mode (ESFR) pendent and upright automatic sprinklers with a nominal discharge coefficient of 14.0 gal/min/(psi)<sup>1/2</sup> with design modifications.
- 1.2 This Report is limited to the examination of the sprinklers in accordance with the standard listed below as described in Section II of this Report.
- 1.3 This Report may be freely reproduced only in it's entirety and without modification.
- 1.4 **Standards**

Title	Class Number	Date
Early Suppression Fast Response (ESFR) Automatic Sprinklers	2008	August 1996

- 1.5 **Listing:** The Approval Guide listing was unaffected by the results of this examination.

**II DESCRIPTION**

- 2.1 The Viking Model VK500 and VK520 automatic sprinklers utilize a fusible type heat activated element which ruptures within a predetermined temperature band, allowing water to flow at a specified rate and in a particular distribution pattern for a given supplied water pressure. The sprinklers are designed for use in automatic sprinkler fire protection systems as a means of fire control and are rated for 175 psi (1207 kPa) maximum system pressure. These models are further described in the attached manufacturer's drawings.
- 2.2 The sprinklers were evaluated for Approval under this examination in accordance with the following list only:

Model	Style	Element	Temperature Ratings	Application
VK500	Pendent	Fusible	165 and 205°F (74 and 96°C)	ESFR
VK520	Upright	Fusible	165 and 205°F (74 and 96°C)	ESFR

- 2.3 The scope of this examination is limited to the Model VK500 and VK520 sprinklers with modified components. These sprinklers are otherwise identical to the currently Approved

FACTORY MUTUAL RESEARCH  
3012261

Model VK500 and VK520 automatic sprinklers which are further described in the following Approval Reports:

Job Identification	Date	Description
0B0A4.AH	25 Feb 2000	ESFR Pendent, 165°F (74°C)
3008464	18 July 2000	ESFR Upright, 165°F (74°C)
3008862	9 Nov 2000	ESFR Pendent, 165°F (74°C), with kickspring
3007275	4 Dec 2001	ESFR Upright and Pendent, 205°F (96°C)

**IX CONCLUSION**

The sprinklers described in Section II meet Factory Mutual Research requirements. Approval is effective when the Approval Agreement is signed and received by Factory Mutual Research.

**EXAMINATION AND TESTING BY:** Hydraulics Laboratory personnel

**PROJECT DATA RECORD:** J.I. 3012261

**ORIGINAL TEST DATA:** J.I. 3012261

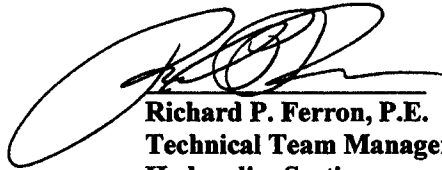
**ATTACHMENTS:** Appendix Tables, Manufacturer's Drawings

**REPORT BY:**

**REPORT REVIEWED BY:**



**Claude Bosio**  
Senior Engineer  
Hydraulics Section



**Richard P. Ferron, P.E.**  
Technical Team Manager  
Hydraulics Section

1151 Boston-Providence Turnpike  
P.O. Box 9102  
Norwood, MA 02062 USA  
T: (781) 762-4300 F: (781) 762-9375

**APPROVAL AGREEMENT**

The Agreement is made by and between Factory Mutual Research Corporation (herein called Factory Mutual Research) and **The Viking Corporation, Hastings, MI 49058**

(herein called the Client). The Client is making a product or providing a service known and described as:

**MODEL VK500 AND VK520  
FUSIBLE TYPE SUPPRESSION MODE (ESFR)  
PENDENT AND UPRIGHT AUTOMATIC SPRINKLERS  
WITH A NOMINAL DISCHARGE COEFFICIENT OF 14.0  
GAL/MIN/(PSI)<sup>1/2</sup> IN A NOMINAL TEMPERATURE  
RATING OF 205°F (96°C)**

This product or service has been examined by Factory Mutual Research as described in a report bearing Job Identification **3007275** dated **December 14, 2001**.

In consideration of Factory Mutual Research Approval of the product or service, the Client is authorized to indicate such Approval, as stated by the above report, and agrees to the following and terms stated on the reverse side of this Agreement:

1. The Client shall place a unique identification mark (i.e. model or type number) on the product as stated in the above report and shall not place this mark on any other product unless covered by a separate Agreement with Factory Mutual Research.
2. The Client shall use the Factory Mutual Research Approval Mark on the product, but shall not use this mark on any other product unless such other product is covered by separate Agreement with Factory Mutual Research.
3. The Client shall not use, reproduce or distribute the above referenced report by Factory Mutual Research except in its entirety without any change, deletion or addition thereto. The Client agrees that Factory Mutual Research may distribute the referenced report and related information within FM Global.

The Viking Corporation  
 \_\_\_\_\_ Client  
*Scott T. Franson* Signature  
 \_\_\_\_\_  
 Scott T. Franson Name  
 \_\_\_\_\_  
 Director, Sprinkler Division Title  
 210 N Industrial Park Rd  
 Hastings MI 49058 Address  
 \_\_\_\_\_  
 January 2, 2002 Date  
 \_\_\_\_\_  
 Date

**FACTORY MUTUAL RESEARCH CORPORATION**  
 \_\_\_\_\_  
*R.L. Martell* Signature  
 \_\_\_\_\_  
 R.L. Martell Name  
 \_\_\_\_\_  
 Asst. V.P. – Approvals Division Title  
 \_\_\_\_\_  
 12-18-01 Date  
 \_\_\_\_\_  
 Date

743A Reynolds Road  
 West Glocester, Rhode Island 02814 USA  
 T: (401) 567-0590 F: (401) 567-0599

## APPROVAL AGREEMENT

The Agreement is made by and between Factory Mutual Research Corporation (herein called Factory Mutual Research) and **The Viking Corporation, Hastings, MI 49058**

(herein called the Client). The Client is making a product or providing a service known and described as:

**MODEL VK520  
 FUSIBLE TYPE  
 SUPPRESSION MODE (ESFR)  
 UPRIGHT  
 AUTOMATIC SPRINKLERS WITH  
 A NOMINAL DISCHARGE COEFFICIENT OF 14.0 GAL/MIN/(PSI) ½  
 IN PLAIN BRASS FINISH  
 IN A NOMINAL TEMPERATURE RATING OF 165°F (74°C)**

This product or service has been examined by Factory Mutual Research as described in a report bearing

Job Identification **3008464**

dated **July 18, 2000.**

In consideration of Factory Mutual Research Approval of the product or service, the Client is authorized to indicate such Approval, as stated by the above report, and agrees to the following and terms stated on the reverse side of this Agreement:

1. The Client shall place a unique identification mark (i.e. model or type number) on the product as stated in the above report and shall not place this mark on any other product unless covered by a separate Agreement with Factory Mutual Research.
2. The Client shall use the Factory Mutual Research Approval Mark on the product, but shall not use this mark on any other product unless such other product is covered by separate Agreement with Factory Mutual Research.
3. The Client shall not use, reproduce or distribute the above referenced report by Factory Mutual Research except in its entirety without any change, deletion or addition thereto. The Client agrees that Factory Mutual Research may distribute the referenced report and related information within FM Global.

The Viking Corporation  
 \_\_\_\_\_ Client  
*Scott J. Franson*  
 \_\_\_\_\_ Signature  
Scott Franson  
 \_\_\_\_\_ Name  
Director, Sprinkler Division  
 \_\_\_\_\_ Title  
210 N. Industrial Park Rd  
 \_\_\_\_\_ Address  
Hastings, MI 49058  
 \_\_\_\_\_  
August 18, 2000  
 \_\_\_\_\_ Date

**FACTORY MUTUAL RESEARCH CORPORATION**  
*R.L. Martell*  
 \_\_\_\_\_ Signature  
R.L. Martell  
 \_\_\_\_\_ Name  
Asst. V.P. – Approvals Division  
 \_\_\_\_\_ Title  
August 9, 2000  
 \_\_\_\_\_ Date