

# **Certificate of Compliance**

### **Automatic Control Mode Sprinklers for Fire Protection**

This certificate is issued for the following equipment:

Model	K	Туре	Resp	Element	NPT (in.)	Finishes	Temp. Ratings °F (°C)
VK145	5.6	Upright	SR	5 mm	1/2	Brass, Chrome, Wax, Polyester	135°, 155°, 175°, 200°, 212°, 286°, 360°, 500°F (57°, 68°, 79°, 93°, 100°, 141°, 182°, 260°C)

Manufactured by:

The Viking Corporation

Manufacturing Location:

210 N Industrial Park Dr. Hastings, Michigan 49058

FM Approvals confirms that the items have been found to comply with the following standards:

FM Approvals Standard 2000 (March 2006)

Project Identifier:

3035452

Date of Approval:

July 31, 2009

Richard B. Dunne

Group Manager - Hydraulics

Date



Member of the FM Global Group



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# **APPROVAL REPORT**

MODEL VK100, VK108, VK300, VK301, VK550, VK552 AND VK556 UPRIGHT AND RACK STORAGE UPRIGHT AUTOMATIC SPRINKLERS WITH A NOMINAL DISCHARGE COEFFICIENT OF 5.6 GAL/MIN/(PSI)<sup>1/2</sup> WITH AN ALTERNATIVE DEFLECTOR MATERIAL

### **Prepared for:**

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

**Project ID: 3029210** 

Class: 2016

Date of Approval: 24 September 2007

**Authorized by:** 

Richard B. Dunne, Manager-Hydraulics Group

FM Approvals 1151 Boston-Providence Turnpike P.O. Box 9102 Norwood, MA 02062



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# APPROVAL REPORT

MODEL VK100 5 MM BULB TYPE CONTROL MODE UPRIGHT STANDARD RESPONSE AUTOMATIC SPRINKLER WITH A NOMINAL DISCHARGE COEFFICIENT OF 5.6 GAL/MIN/(PSI)<sup>1/2</sup> WITH A WAX **OVER POLYESTER FINISH IN A NOMINAL TEMPERATURE RATING OF 155°F (68°C)** 

# **Prepared for:**

The Viking Corporation 210 N. Industrial Park Road Hastings, MI 49058

**Project ID: 3024747** 

**Class: 2016** 

Date of Approval: 29 June 2007

**Authorized by:** 

Richard B. Dunne, Manager-Hydraulics Group

FM Approvals 1151 Boston-Providence Turnpike P.O. Box 9102 Norwood, MA 02062



# APPROVAL REPORT

SAND CAST FRAME, BULB TYPE, PENDENT AND UPRIGHT, STANDARD AND QUICK RESPONSE AUTOMATIC SPRINKLERS (VARIOUS MODELS) WITH NOMINAL DISCHARGE COEFFICIENTS OF 2.8 AND 5.6 GAL/MIN/(PSI)<sup>1/2</sup> IN PLAIN BRASS, CHROME, AND POLYESTER COATED FINISHES (MODIFICATION)

# Prepared for:

The Viking Corporation 210 N. Industrial Park Rd. Hastings, MI 49058

**Project ID: 3020603** 

Class: 2016

Date of Approval: September 1, 2004

Authorized by:

Roger L. Allard, Assistant Vice President

FM Approvals 1151 Boston-Providence Turnpike P.O. Box 9102 Norwood, MA 02062



# APPROVAL REPORT

MODEL VK100, VK102, VK200, VK202, VK300, VK302, VK350 AND VK352, BULB TYPE STANDARD AND QUICK RESPONSE AUTOMATIC SPRINKLERS WITH A NOMINAL DISCHARGE COEFFICIENT OF 5.6 AND 8.0 GAL/MIN/(PSI)<sup>1/2</sup> (MODIFICATION)

### **Prepared for:**

The Viking Corporation 210 N. Industrial Park Road Hastings, Michigan 49058

Project ID. 3007385 Class 2016 Date: 13 May 2002

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



# **APPROVAL REPORT**

MODEL VK200, VK204 AND VK350 CONTROL-MODE (DENSITY/AREA) UPRIGHT AUTOMATIC SPRINKLERS WITH A NOMINAL DISCHARGE COEFFICIENT OF 8.0 GAL/MIN/(PSI)<sup>1/2</sup> IN A POLYESTER COATED FINISH

### **Prepared for:**

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

Project ID. 3012769 Class 2001 Date: 7 January 2002

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



# APPROVAL REPORT

MODEL VK300, VK100 AND VK108 CONTROL-MODE (DENSITY/AREA) UPRIGHT AUTOMATIC SPRINKLERS WITH A NOMINAL DISCHARGE COEFFICIENT OF 5.6 GAL/MIN/(PSI)<sup>1/2</sup> IN A POLYESTER COATED FINISH

# Prepared for:

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

**Project ID. 3006951 Class 2016** 

**Date: 28 March 2001** 

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



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:

MODELS VK100, VK102, VK108, VK110, VK300, VK302, VK550 AND VK556

BULB AND FUSIBLE TYPE
CONTROL-MODEL (DENSITY/AREA)
UPRIGHT, PENDENT, RECESSED PENDENT, AND RACK STORAGE
UPRIGHT

STANDARD AND QUICK RESPONSE AUTOMATIC SPRINKLERS WITH A NOMINAL DISCHARGE COEFFICIENT OF 5.6 GAL/MIN/(PSI)<sup>1/2</sup> (MODIFICATION)

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

Job Identification 3008096

dated October 13, 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.

		FACTORY MUTUAL RESEARCH CORP	ORATION
Lutt J. Fransin	Client	Pinot	
	Signature	R.L. Martell	Signature
	Name	Asst. V.P. – Approvals Division	Name
	Title	November 10, 2000	Title
Marenter 17,2000	Address		Date
, , , , , , , , , , , , , , , , , , , ,	Data		

An FM 610 bal Affiliate

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**Factory Mutual Research Corporation** 

Hydraulies Laboratory 743A Reynolds Road West Glocester, Rhode Island 02814

Telephone: (401) 567-0590 Fax: (401) 567-0599

#### APPROVAL AGREEMENT

The Agreement is made by and between Factory Mutual Research Corporation, (herein called FMRC), and **Sprinkler Viking SA, L-4562 Differdange/Niedercorn, Luxembourg** (herein called the Client). The Client is making a product or providing a service known and described as:

#### SPRINKLER VIKING MODEL M

BULB TYPE NOMINAL 1/2 AND 17/32 IN. ORIFICE UPRIGHT AND PENDENT STANDARD RESPONSE AUTOMATIC SPRINKLERS WITH 5MM BULB IN NOMINAL TEMPERATURE RATINGS OF 135, 155, 175, 200, 286 AND 360°F (57, 68, 79, 93, 141 AND 182°C)

This product or service has been examined by FMRC as described in the report bearing Job Identification 1D8A6.AH, dated March 16, 1998.

In consideration of FMRC 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 separate agreement with FMRC.
- 2. The Client shall use the FMRC 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 FMRC.
- 3. The Client shall not use, reproduce or distribute the above referenced report by FMRC except in its entirety without any change, deletion or addition thereto. The Client agrees that FMRC may distribute the referenced report and related information within the Factory Mutual System.

(SEE OVER)

THE VIKING CORPORATION		FACTORY MUTUAL RESEARCH CORPORATIO		
Stram O-	Client	P. J. Real Learn		
	Signature	1 700	Signature	
SHAWN ORR		R. L. Martell		
DDA IEGO ENGINEDO	Name		Name	
PROJECT ENGINEER		Asst. V.P Approvals Division		
210 NORTH INDUSTRIAL PARK ROAD	Title		Title	
HASTINGS MI 49058		April 17, 1998		
	Address		Date	
MAY 1, 1998		_		
	Date	<del>-</del>		



**Factory Mutual Research Corporation** 

Hydraulics Laboratory 743A Reynolds Road

West Glocester, Rhode Island 02814

Telephone: (401) 567-0590 Fax: (401) 567-0599

#### **APPROVAL AGREEMENT**

The Agreement is made by and between Factory Mutual Research Corporation, (herein called FMRC), 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:

# THE VIKING CORPORATION MODEL M BULB-TYPE NOMINAL 1/2IN. AND 17/32 IN. ORIFICE UPRIGHT AND PENDENT STANDARD RESPONSE AUTOMATIC SPRINKLERS WITH A 5 MM BULB IN A NOMINAL TEMPERATURE RATING OF 500°F (260°C)

This product or service has been examined by FMRC as described in the report bearing Job Identification 1D5A4.AH, dated January 7, 1998

In consideration of FMRC 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 separate agreement with FMRC.
- 2. The Client shall use the FMRC 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 FMRC.
- 3. The Client shall not use, reproduce or distribute the above referenced report by FMRC except in its entirety without any change, deletion or addition thereto. The Client agrees that FMRC may distribute the referenced report and related information within the Factory Mutual System.

(SEE OVER)

The Viking Corporation	FACTORY MUTUAL RESEARCH CORPORATION
Man On Client	Carl Jan
Shawn Orr Signature	•
	R. L. Martell .
Name	Name
Project Engineer	Asst. V.P Approvals Division .
210 N. Industrial Park Rd. Title	
Hastings, MI 49058	January 19, 1998
February 3, 1998 Address	Date
Date	·



Factory Mutual Research Corporation Hydraulies Laboratory 743A Reynolds Road West Glocester, Rhode Island 02814

Telephone: (401) 567-0590 Fax: (401) 567-0599

#### APPROVAL AGREEMENT

The Agreement is made by and between Factory Mutual Research Corporation, (herein called FMRC), 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:

#### VIKING CORPORATION MODEL M

BULB TYPE NOMINAL 1/2 IN. AND 17/32 IN. ORIFICE UPRIGHT AND PENDENT AUTOMATIC SPRINKLERS WITH A 5 MM BULB IN NOMINAL TEMPERATURE RATINGS OF 135, 155, 175, 200 286 AND 360°F (57, 68, 79, 93, 141 AND 182°C) (MODIFICATION)

This product or service has been examined by FMRC as described in the report bearing Job Identification 0D2A6.AH, dated October 1, 1997

In consideration of FMRC 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 separate agreement with FMRC.
- 2. The Client shall use the FMRC 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 FMRC.
- 3. The Client shall not use, reproduce or distribute the above referenced report by FMRC except in its entirety without any change, deletion or addition thereto. The Client agrees that FMRC may distribute the referenced report and related information within the Factory Mutual System.

(SEE OVER)

	_ FAGTORY MUTUAL RESEARCH CORP	ORATION
Client	1 & MARIE	
Signature	R. L. Martell	Signature
Name	Asst. V.P Approvals Division	Name
Title	October 10, 1997	Title
Address		Date
Date	_	



1151 Boston-Providence Turnpike P.O. Box 9102 Norwood, Massachusetts 02062 Telephone (617) 762-4300 Telex 92-4415

#### APPROVAL AGREEMENT

The Agreement is made by and between Factory Mutual Research Corporation, (herein called Factory Mutual), 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 M

BULB TYPE NOMINAL 1/2 IN. ORIFICE

UPRIGHT SPRINKLERS W/ALTERNATE DEFLECTOR (L.O.)

135°, 155°, 175°, 200°, 286°, AND 360°F

(57°, 68°, 79°, 93°, 141°, AND 182°C)

This product or service has been examined by Factory Mutual as described in the report bearing Job Identification , dated September 6, 1989

In consideration of Factory Mutual 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 separate agreement with Factory Mutual.
- 2. The Client shall use the Factory Mutual 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.
- 3. The Client shall not use, reproduce or distribute the above referenced report by Factory Mutual except in its entirety without any change, deletion or addition thereto. The Client agrees that Factory Mutual may distribute the referenced report and related information within the Factory Mutual System.

  (SEE OVER)

The state of the s	TACTOR I MOTORE RESEARCH CORPORATION
Peter Kr. Then Client	- Demotell
Signature	Signature
	R. L. Martell
Name	Name
	Asst. V. P Approvals Division
Title	Title
	October 20, 1989
Address	Date

TODY MUTUAL DECEMBOU CODDODATION



1151 Boston-Providence Turnpike P.O. Box 9102 Norwood, Massachusetts 02062 Telephone (617) 762-4300 Telex 92-4415

#### APPROVAL AGREEMENT

The Agreement is made by and between Factory Mutual Research Corporation, (herein called Factory Mutual), 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 M

BULB TYPE, AUTOMATIC SPRINKLER

17/32 IN. NOMINAL ORIFICE

(MODIFICATION)

This product or service has been examined by Factory Mutual as described in the report bearing Job Identification 100A5.AH , dated September 29, 1988

In consideration of Factory Mutual 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 separate agreement with Factory Mutual.
- 2. The Client shall use the Factory Mutual 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.
- 3. The Client shall not use, reproduce or distribute the above referenced report by Factory Mutual except in its entirety without any change, deletion or addition thereto. The Client agrees that Factory Mutual may distribute the referenced report and related information within the Factory Mutual System.

Peter Tama	FACTORY MUTUAL RESEARCH CORPORATION
Signature	R. L. Martell
Name	Asst. V.P Approvals Division
Title	January 24, 1989
Address	Date
Date	

L-15 (5-86)FMRC PRINTED IN USA

COPY - ORIGINAL RETURNED



1151 Boston-Providence Turnpike P.O. Box 9102 Norwood, Massachusetts 02062 Telephone (617) 762-4300 Telex 92-4415

#### APPROVAL AGREEMENT

The Agreement is made by and between Factory Mutual Research Corporation, (herein called Factory Mutual), 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 M

BULB TYPE, AUTOMATIC SPRINKLER

1/2 AND 3/8 IN. NOMINAL ORIFICES

(MODIFICATION)

This product or service has been examined by Factory Mutual as described in the report bearing Job Identification 1P4A6.AH dated July 12, 1988

In consideration of Factory Mutual 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 separate agreement with Factory Mutual.
- 2. The Client shall use the Factory Mutual 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.
- 3. The Client shall not use, reproduce or distribute the above referenced report by Factory Mutual except in its entirety without any change, deletion or addition thereto. The Client agrees that Factory Mutual may distribute the referenced report and related information within the Factory Mutual System.

Peter Thomes

Signature

Name

Name

Asst. V.P. - Approvals Division

Address

Address

FACTORY MUTUAL RESEARCH CORPORATION

Signature

R. L. Martell

Signature

August 22, 1988

Title

Date



1151 Boston-Providence Turnpike P.O. Box 688 Norwood, Massachusetts 02062 Telephone (617) 762-4300 Telex 92-4415

#### APPROVAL AGREEMENT

This Agreement is made by and between Factory Mutual Research Corporation, (herein called Factory Mutual), and The Viking Corporation, Hastings, Michigan 49058 (herein called the Client). The Client is making a product or providing a service known and described as:

#### MODEL M

BULB TYPE UPRIGHT & PENDENT LARGE ORIFICE SPRINKLERS
WITH 1/2 AND 3/4 IN. NPT (12.7 AND 19.1 mm) THREADED CONNECTIONS
BRONZE, CHROMIUM PLATED AND LEAD COATED
IN TEMPERATURE RATINGS

OF

135, 155, 175, 200, 286, 360°F (57, 68, 79, 93, 141, 182°C)

WAX COATED AND WAX OVER LEAD COATED

IN TEMPERATURE RATINGS

OF

135, 155, 175, 200°F (57, 68, 79, 93°C)

This product or service has been examined by Factory Mutual as described in the report bearing Job Identification 1C3A6.AH , dated April 8, 1982

In consideration of Factory Mutual 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 separate agreement with Factory Mutual.
- 2. The Client shall use the Factory Mutual 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.
- 3. The Client shall not use, reproduce or distribute the above referenced report by Factory Mutual except in its entirety without any change, deletion or addition thereto.

  (SEE OVER)

THE VIKING CORPORATION	FACTORY MUTUAL RESEARCH	
Client	pohhus	
James G. Retzloff	P. E. Johnson	Signature
Name		Name
Vice PresDesign & Development	V.P. & MgrApprovals Division	L
210 N. Industrial Park Rd.  Hastings, MI 49058	May 24, 1982	Title
Address		Date

Date

May 26, 1982



1151 Boston-Providence Turnpike Norwood, Massachusetts 02062 Telephone (617) 762-4300 Telex 92-4415

#### APPROVAL AGREEMENT

This agreement is made by and between Factory Mutual Research Corporation, (herein called Factory Mutual), and The Viking Corporation, Hastings, Michigan 49058 (herein called the Client). The Client is making a product or providing a service known and described as:

#### MODEL M

#### **BULB TYPE UPRIGHT & PENDENT STANDARD SPRINKLERS**

#### IN TEMPERATURE RATINGS

0F

135, 155, 175, 200, 286 AND 360°F (57, 68, 79, 93, 141 AND 182°C)

This product or service has been examined by Factory Mutual as described in the report bearing Job Identification , dated January 27, 1982

In consideration of Factory Mutual Approval of the product or service the Client is authorized to indicate such approval, as stated by the above report, and it is agreed that:

- 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 separate agreement with Factory Mutual.
- 2. The Client shall use the Factory Mutual 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.
- 3. The Client shall not use, reproduce or distribute the above referenced report by Factory Mutual except in its entirety without any change, deletion or addition thereto.
- 4. The Client shall assume full responsibility for the design, material, workmanship and operation of the product or the quality of the service rendered and agrees to hold harmless and indemnify Factory Mutual from any claims and liability to the Client or others for any kind or type of injury or damage, including without limitation, loss of earnings or profits, caused by or in any way connected with any of the services rendered by Factory Mutual, or arising out of any defect, accident, damage or injury related to the product or service herein.
- 5. The Client shall manufacture the product or provide the service as approved by Factory Mutual and no changes of any nature shall be made in the product or service unless notice of the proposed change has been given and written authorization obtained from Factory Mutual. Client agrees to make full and immediate written disclosure to Factory Mutual of all information concerning any defect in or potential hazard of the product or service herein. Failure of the foregoing may result in suspension or withdrawal of Factory Mutual Approval.



# **Certificate of Compliance**

### **Automatic Control Mode Sprinklers for Fire Protection**

This certificate is issued for the following equipment:

Model	K	Туре	Resp.	Element	NPT (in.)	Finishes	Temperature Ratings °F (°C)
VK200	8.0	Upright	SR	5 mm	1/2, 3/4	Brass, Chrome, Polyester	135°, 155°, 175°, 200°, 286°, 360°, 500°F (57°, 68°, 79°, 93°, 141°, 182°, 260°C)
VK200	8.0	Upright	SR	5 mm	1/2, 3/4	Wax	135°, 155°, 175°, 200°F (57°, 68°, 79°, 93°C)

Manufactured by:

The Viking Corp, 210 N Industrial Park Rd, Hastings, Michigan 49058

Manufacturing Location:

The Viking Corp, 210 N Industrial Park Rd, Hastings, Michigan 49058 and The Viking Corp, 11305 James St, Holland, MI 49424

FM Approvals confirms that the items have been found to comply with the following standard:

FM Approvals Standard 2000 (March 2006)

Project Identifier:

3026351

Date of Approval:

May 5, 2009



Member of the FM Global Group

Richard B. Dunne

Group Manager - Hydraulics

Date