

File Ex643
Project 96NK8906
*Project 98NK20794

Issued: January 31, 1997
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REPORT

on

SPRINKLERS, AUTOMATIC AND OPEN

The Viking Corporation
Hastings, MI

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GENERAL

INTRODUCTION:

This Report describes the investigation of automatic sprinklers intended to be installed in accordance with the National Fire Protection Association Standard For The Installation of Sprinkler Systems, NFPA 13.

OBJECT:

The object of this investigation was to determine compliance of the automatic sprinklers with the Standard For Automatic Sprinklers For Fire Protection Service, UL 199.

PLAN:

The investigation of the automatic sprinklers consisted of conducting a product conformance evaluation and performance testing as described in UL 199.

DESCRIPTION

PRODUCT COVERED:

*Model M-5 1/2 in. orifice horizontal sidewall sprinklers with Job's G-5 5 mm glass bulb and Norbulb 3 mm glass bulb heat responsive elements rated 135, 155, 175, 200, 286, and 360°F.

CONSTRUCTION DETAILS:

The devices have been examined and found to comply with the Standard For Automatic Sprinklers in effect as of the date of this Report.

USE:

The products covered by this Report are for use in accordance with the National Fire Protection Association Standard For The Installation of Sprinkler Systems, NFPA 13, and the manufacturer's installation instructions see Fig. 1.

C O N C L U S I O N

Samples of the products covered by this Report have been found to comply with the requirements covering the class and the products are judged to be eligible for Listing and Follow-Up Service. The manufacturer is authorized to use the Laboratories' Mark on such products which comply with the Follow-Up Service Procedure and any other applicable requirements of Underwriters Laboratories Inc. Only those products which properly bear the Laboratories' Mark are considered as Listed by Underwriters Laboratories Inc.

Report by:

Reviewed by:

MICHAEL G. MCCORMICK
Engineering Associate

GEORGE E. LAVERICK
Engineering Group Leader

File Ex643
Project 95NK34821
Project 96NK19119
Project 97NK2995
Project 98NK20794
Project 99NK21353
*Project 03NK33

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REPORT

on

SPRINKLERS, AUTOMATIC AND OPEN

Viking Corporation
Hasting, MI

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GENERAL

INTRODUCTION:

This Report describes the investigation of automatic sprinklers intended to be installed in accordance with the National Fire Protection Association Standard For The Installation of Sprinkler Systems, NFPA 13.

OBJECT:

The object of this investigation was to determine compliance of the automatic sprinklers with the Standard For Automatic Sprinklers For Fire Protection Service, UL 199.

PLAN:

The investigation of the automatic sprinklers consisted of conducting a product conformance evaluation and performance testing as described in UL 199.

DESCRIPTION

PRODUCT COVERED:

Model M, 3/8 and 1/2 in. orifice pendent and upright, Model M-5, 1/2 in. horizontal sidewall and extended coverage pendent and horizontal sidewall, Model M, 3/8 in. horizontal sidewall, high pressure sprinklers in the 135, 155, 175, 200 and 286°F temperature ratings for Quick Response Types 135, 155, 175, 200, 286 and 360°F for Standard Response Types and 135, 155 and 175°F for Quick Response Extended Coverage Types having 1/2 in. inlet threads, with rated pressure of 250 psig.

*The Model M-5 (VK442), 5.6K quick response, horizontal sidewall will be identified as SIN VK305.

*The Model M-5 (VK442), 5.6K quick response, extended coverage horizontal sidewall will be identified as SIN VK605.

CONSTRUCTION DETAILS:

The devices have been examined and found to comply with the Standard for Automatic Sprinklers, UL 199, in effect as of the date of this Report.

USE:

The products covered by this Report are for use in accordance with the National Fire Protection Association Standard for the Installation of Sprinkler Systems, NFPA 13, and the manufacturer's installation instructions (see Figs. 1, 5, 6 and 7).

C O N C L U S I O N

Samples of the products covered by this Report have been found to comply with the requirements covering the class and the products are judged to be eligible for Listing and Follow-Up Service. The manufacturer is authorized to use the Laboratories' Mark on such products which comply with the Follow-Up Service Procedure and any other applicable requirements of Underwriters Laboratories Inc. Only those products which properly bear the Laboratories' Mark are considered as Listed by Underwriters Laboratories Inc.

Report by:

Reviewed by:

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GEORGE E. LAVERICK
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File Ex643
Project 88NK9535

July 8, 1988

REPORT

on

SPRINKLERS, AUTOMATIC AND OPEN

Viking Corporation
Hastings, MI

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GENERAL

OBJECT:

The object of this investigation was to determine the compliance of the Viking Model M recessed horizontal sidewall sprinkler utilizing 2.8 mm, 5 mm, and 8 mm glass bulbs or fusible links with the Standard For Automatic Sprinklers For Fire Protection Service, UL 199.

PLAN:

The following tests were conducted to evaluate the Model M recessed horizontal sidewall sprinkler utilizing 2.8 mm, 5 mm, and 8 mm glass bulbs rated 135°F, 155°F, 175°F and 200°F or fusible links rated 165°F and 220°F using Model E-1 and F-1 recessed cups for installation from 4 to 12 in. below the ceiling.

Since the Model M Standard horizontal sidewall sprinkler is currently Listed with 2.8 mm and 8 mm glass bulbs and fusible links, only the following tests were conducted to evaluate the Model E-1 and F-1 recessing cups. The Model M recessed horizontal sidewall sprinkler having quick response feature was tested using only F-1 recessed cup.

1. Examination of Samples.
2. Operation - Lodgement Test.
3. Sidewall Distribution.
4. Response Test For Ceiling Type Sprinklers.

DESCRIPTION

PRODUCT COVERED:

Model M 1/2 in. size recessed horizontal sidewall sprinklers, utilizing fusible links or 2.8 mm and 8 mm glass bulbs manufactured by E. Job Inc. for a maximum pressure of 175 psig for wet systems as follows:

<u>Description</u>	<u>Rating, °F</u>
Model "M" recessed horizontal sidewall, for use in E-1 or F-1 recessed cup, 2.8 mm glass bulb, for installation 4 to 12 in. below the ceiling.	135, 155, 175, 200
Model "M" recessed horizontal sidewall, for use in E-1 or F-1 recessed cup, 8 mm glass bulb, for installation 4 to 12 in. below the ceiling.	135, 155, 175, 200
Model "M" recessed horizontal sidewall, for use in E-1 or F-1 recessed cup, fusible link, for installation 4 to 12 in. below the ceiling.	220°F

Model "M" 1/2 in. size recessed horizontal sidewall sprinklers utilizing 2.8 mm glass bulbs in the 135 and 155°F temperature rating and equipped with Model F-1 adjustable escutcheon have quick response feature.

GENERAL:

The devices are automatic sprinklers of the glass bulb and fusible link types consisting of a frame, horizontal sidewall deflector, cap assembly, releasing mechanism, and adjustable escutcheon.

RATINGS:

The sprinkler is produced in the following temperature ratings:

<u>Operating Mechanism</u>	<u>Rating, °F</u>	<u>Color Identification</u>	
		<u>Frame</u>	<u>Bulb</u>
2.8 Glass Bulb	135°F	Uncolored	Orange
8.0 Glass Bulb	135°F	Uncolored	Orange
2.8 Glass Bulb	155°F	Uncolored	Red
8 Glass Bulb	155°F		
2.8 Glass Bulb	175°F	White	Yellow
8.0 Glass Bulb	175°F	White	Yellow
2.8 Glass Bulb	200°F	White	Aqua
8.0 Glass Bulb	200°F	White	Green
Fusible Link	220°F	White	-

MARKING:

<u>Location</u>	<u>Marking</u>
Wrench Head	"Viking" and year of manufacturing on opposite M
Frame Top	"M"
Fusible Link	Temperature Rating °F and °C
Deflector	"Sidewall," "Top" and Arrow, Temperature Rating °F and °C.

C O N C L U S I O N

Samples of the product covered by this Report have been found to comply with the requirements and the products are judged to be eligible for Listing and Follow-Up Service. The manufacturer is authorized to use the Laboratories' Mark on such products which comply with the Follow-Up Service Procedure and any other applicable requirements of Underwriters Laboratories Inc. Only those product which properly bear the Laboratories' Mark are considered as Listed by Underwriters Laboratories Inc.

Report by:

Reviewed by:

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Senior Project Engineer
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File Ex643
Project 78NK8884
Project 91NK1369
Project 91NK8921
Project 91NK6712
Project 91NK20429
Project 97NK23564
Project 97NK23619
Project 97NK32051
Project 98NK5103
Project 98NK17623
Project 98NK11873
Project 99NK21033
Project 99NK25817
Project 99NK36385
Project 99NK40795
Project 00NK24313
Project 00NK39796
Project 00NK36004
Project 00NK26085
Project 01NK6252
Project 01NK33
Project 01NK09243
Project 01NK46248
Project 01NK14642
Project 03NK09286
Project 02NK14247
Project 03NK08543
Project 04NK15031
Project 07NK06815
Project 07NK13042
Project 09CA37128

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REPORT
on
SPRINKLERS, AUTOMATIC AND OPEN

Viking Corp.
Hastings, MI

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GENERAL

*

PRODUCT COVERED:

Automatic sprinklers incorporating frangible 3, 5, and 3mm XS glass bulbs manufactured by Job GmbH and Norbulb, of the following models, types and temperature ratings.

Sprinklers rated 360°F utilize the 5 mm glass bulb only.

	<u>SIN #</u>	<u>DESCRIPTION</u>
USL, CNL,	VK001, VK002, VK003, VK004, VK100, VK102, VK118, VK120, VK200, VK202, VK550, VK560	2.8, 4.2, 5.6, and 8.0 K. Standard Response Upright, Pendent, Conventional, Concealed and Intermediate
USL, CNL,	VK300, VK302, VK310, VK325, VK327, VK329, VK331, VK350, VK352, VK354, VK556, VK566	2.8, 4.2, 5.6 and 8.0 K. Quick Response Upright, Pendent, Conventional, Concealed and Intermediate
USL, CNL	VK104	5.6 K. Standard Response Horizontal Side Wall
USL, CNL	VK304, VK305, VK333	2.8 and 5.6 K. Quick Response Horizontal Sidewall
USL, CNL	VK600, VK602, VK604, VK605, VK606, VK610, VK612, VK614, VK616	5.6 and 8.0 K. Quick Response and Standard Response Extended Coverage
USL, CNL	VK015, VK021, VK023, VK116, VK122, VK124, VK315, VK317, VK319, VK340, VK342, VK344, VK558	2.8 and 5.6 K. High Pressure Quick Response and Standard Response
USL, CNL	VK130, VK132	5.6 K. Stainless Steel
USL, CNL	VK550, VK556, VK560, VK566	5.6 and 8.0 K. Upright Intermediate Level Standard and Quick Response
USL, CNL	VK338, VK339	5.6 K. Stainless Steel Quick Response

(Table Cont'd)

*

<u>SIN #</u>	<u>DESCRIPTION</u>	<u>REMARKS</u>
USL, CNL	VK910	5.6 K SR Pendent
All Models	Chrome plated, Bright Brass and Nickel plated quick response.	Ratings - 135, 155, 175, 200 and 286°F, installation indicated by deflector.
All Models	Wax coated. Standard Response Only.	Ratings - 135, 155, 175, 200 and 286°F+.
All Models	Lead coated.	Ratings - 135, 155, 175, 200 and 286°F. Installation, pendent and upright.
All Models	IVC Poly 99 Polyester coated.	Ratings - 135, 155, 175, 200 and 286°F. Installation indicated by deflector.
All Models	IVC Poly 99 Polyester coated. Quick Response.	Ratings - 135, 155, 175, 200 and 286°F. Installation, upright and pendent only.
All Models	Teflon coated.	Ratings - 135, 155, 175, 200 and 286°F. Installation as indicated by deflector.
All Models	Teflon coated quick response.	Ratings - 135, 155, 175, 200 and 286°F. Installation, upright and pendent only.
All Models	IVC Poly 99 Polyester coated quick response corrosion resistant in all colors.	Ratings - 135, 155, 175, 200 and 286°F. Installation as indicated by deflector.
VK910		Ratings-135,155,175,200,286, 360°F

+ - Uses 200°F wax for installation where ambient temperature does not exceed 150°F.

OBJECT:

The object of this investigation was to determine compliance of the sprinklers with Underwriters Laboratories Inc., Standard for Automatic Sprinklers for Fire Protection Service, UL 199-1981.

*

GENERAL:

The Viking Model M bulb type sprinklers consist of a brass frame, copper pip-cap, teflon covered belville spring, and a heat responsive element. The heat responsive element consists of a glass bulb filled with a temperature sensitive liquid. Sprinkler frames are color coded in accordance with the requirements of UL 199 and NFPA 13. In addition the bulb color code reported under "Ratings" applies.

The Model M intermediate level glass bulb sprinkler may utilize the Model B-1 sprinkler guard (upright) and the Model C-1 sprinkler guard (pendent).

FOR ENGINEERING CONSIDERATIONS ONLY:

Table 1

<u>SIN</u>	<u>OLD MODEL</u>	<u>STYLE</u>	<u>K-FACTOR</u>	<u>RESPONSE TYPE</u>
VK100	M	Upright	5.6	SR
VK200	M	Upright	8.0	SR
VK001	M	Upright	2.8	SR
VK002	M	Upright	4.2	SR
VK102	M	Pendent	5.6	SR
VK202	M	Pendent	8.0	SR
VK003	M	Pendent	2.8	SR
VK004	M	Pendent	4.2	SR
VK104	M	HSW	5.6	OR
VK116	M-5	HSW	5.6	SR
VK015	M	HSW	2.8	SR
VK104	M	HSW	5.6	SR
VK106	M	VSW	5.6	SR
VK118	M	Conventional	5.6	SR
VK120	M	Conventional	8.0	SR
VK124	M High Pressure	Pendent	5.6	SR
VK021	M High Pressure	Upright	2.8	SR
VK122	M High Pressure	Pendent	5.6	SR
VK023	M High Pressure	Pendent	2.8	SR
VK536	M	Pendent	11.5	SR
VK300	M	Upright	5.6	QR
VK325	M	Upright	2.8	QR
VK327	M	Upright	4.2	QR
VK350	M	Upright	8.0	QR
VK302	M	Pendent	5.6	QR
VK329	M	Pendent	2.8	QR
VK331	M	Pendent	4.2	QR
VK352	M	Pendent	8.0	QR
VK333	M	HSW	2.8	QR
VK304	M	HSW	5.6	QR
VK442	M-5	HSW	5.6	QR
VK306	M	VSW	5.6	QR
VK310	M	Conventional	5.6	QR
VK354	M	Conventional	8.0	QR
VK130	N-2	Upright	5.6	SR
VK132	N-2	Pendent	5.6	SR

C O N C L U S I O N

Samples of the products covered by this Report have been found to comply with requirements covering the class and the products are judged to be eligible for Listing and Follow-Up Service. The manufacturer is authorized to use the Laboratories' Mark on such products which comply with the Follow-Up Service Procedure and any other applicable requirements of Underwriters Laboratories Inc. Only those products which properly bear the Laboratories' Mark are considered as Listed by Underwriters Laboratories Inc.

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