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REPORT

on

SPRINKLERS, AUTOMATIC AND OPEN

Viking Corporation
Hastings, MI

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G E N E R A L

OBJECT:

The object of this investigation was to determine the *compliance of the Viking Model M utilizing the 3.0 mm glass bulb *manufactured by GmbH Job with the Standard For Automatic Sprinklers For Fire Protection Service, UL 199, applicable requirements.

*

D E S C R I P T I O NPRODUCT COVERED:

Models M, M-5 and A-1 sprinklers, utilizing the 3.0 mm glass *bulb manufactured by Job GmbH for a maximum pressure of 175 psig for wet systems as follows:

<u>Model</u>	<u>Description</u>	<u>Rating, °F</u>
M	Standard, 1/2 in. orifice in the upright and pendent positions for use as a quick response sprinkler	135, 155, 175, 200, 286
M	Large, 17/32 in. orifice in the upright and pendent positions for use as a quick response sprinkler	135, 155, 175, 200, 286
M	Chrome or nickel plated to be installed as indicated by deflector, for use as a quick 1/2 in. orifice	135, 155, 175, 200, 286
M	Vertical and horizontal sidewall, 1/2 in. orifice, for use as a quick response sprinkler	135, 155, 175, 200, 286
M	Wax coated (corrosion resistant) for use as a standard sprinkler	135, 155, 175, 200, 286
M-5	Horizontal sidewall, 1/2 in. orifice, ordinary hazard quick response sprinkler	135, 155, 175, 200, 286

(Table Cont'd)

Model	Description	Rating, °F
M	Lead coated (corrosion resistant) for use as a quick response sprinkler 135,155,175,200,286	
M	Polyester coated (corrosion resistant) for use as a quick response sprinkler 135,155,175,200,286	
M	Teflon coated (corrosion resistant) for use as a quick response sprinkler 135,155,175,200,286	
M	Extended coverage horizontal sidewall 1/2 and 17/32 in. orifice sizes, for area coverages, flow rates, and installations outlined on Page 3A	155
M	Extended coverage pendent 1/2 and 17/32 in. orifice sizes, for area coverages, flow rates, and installations outlined on Page 3A	155, 175
M	Recessed pendent for use as a quick response sprinkler utilizing the F-1 escutcheon	135, 155
M	Extended coverage recessed pendent, 1/2 and 17/32 in. orifice, sizes for area coverages, flow rates, and installation, outlined on Page 3A.	135, 155, 175
M	Quick response extended coverage horizontal sidewall, 1/2 and 17/32 in. orifice, for room sizes and flow rates outlined on Page 3B	135, 155
M	Quick response extended coverage pendent, and recessed pendent 1/2 and 17/32 in. orifice, for room sizes and flow rates outlined on Page 3B	135, 155
A-1	Concealed for use as a quick-response sprinkler, 1/2 in. orifice	155
M	Extended Coverage recessed horizontal sidewall 17/32 in. orifice size, for area coverages, flow rates, and installations as outlined on Page 3A	155, 175
M	Quick Response extended coverage recessed horizontal sidewall 17/32 in. orifice size, for area coverages, flow rates, and installations as outlined on Page 3B	135, 155, 175

QUICK RESPONSE (QR) - CORROSION RESISTANT SPRINKLERS - STAINLESS STEEL

SIN	Type	Nom K-Factor	Temp Rating, °F
VK338	Upright	5.6	135,155, 175, 200 and 286 °F
VK339	Pendent	5.6	135,155, 175, 200 and 286 °F

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 covering the category and the products were 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.

*TEST RECORD NOS. 1 THRU 13

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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
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Project 03NK09286
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REPORT
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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).

The Model A-1 concealed sprinkler utilizes a mounting base and cover plate constructed of UNS-G10080 steel. The cover plate is equipped with a "memory metal" clip constructed of ternary CuZnAl alloy that fastens to the deflector. Upon operation the memory metal expands enabling the cover plate to drop away from the sprinkler (See Figs. 1 and 2). Also, the cover plate may be factory painted using an alkyde paint manufactured by Automotive Finishes Inc. to a thickness not exceeding 0.008 in. thick.

RATINGS:

<u>Rating</u> Deg F	<u>Color Identification</u>	
	<u>Frame</u>	<u>Bulb</u>
135	Uncolored	Orange
155	Uncolored	Red
175	White	Yellow
200	White	Green
286	Blue	Blue
360	Red	Mauve
500	Orange	Black

USE:

These sprinklers are intended for use with automatic sprinkler equipment as covered by the Standard of the National Fire Protection Association for the Installation of Sprinkler System, NFPA 13.

MARKING:

The manufacturer's name, Viking, and issue designation are cast on the sprinkler frame. The year of manufacture is cast in the sprinkler frame and the temperature rating is stamped on the sprinkler deflector. The Listing Mark is stamped on the deflector. The words "Do Not Paint" shall be stamped on the cover plate for concealed sprinklers.

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

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Table Continued

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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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