



the standard in safety

Underwriters
Laboratories

File Ex643
Project 85NK18529
Project 93NK9371
Project 00NK36765
Project 04NK25357
Project 07NK13536

Issued: December 13, 1985
Revised: February 22, 2008

REPORT

on

SPRINKLERS - AUTOMATIC AND OPEN FOR
FIRE PROTECTION SERVICE

The Viking Corporation
Hastings, MI

Copyright © 1985 Underwriters Laboratories Inc.

Underwriters Laboratories Inc. authorizes the above named company to reproduce this Report provided it is reproduced in its entirety.

DESCRIPTION

PRODUCT COVERED:

* SIN VK130 and VK132 upright and pendent standard orifice corrosion resistant sprinklers. The Model N utilizes an 8 mm bulb and has temperature ratings of 135, 155, 175, 200, 286 and 360°F. The Model N2 (VK130 and VK132) utilizes a 5 mm bulb and has temperature ratings of 135, 155, 175, 200, 286, 360 and 500°F.

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 Systems, NFPA 13-1985.

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 product category 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 Laboratory mark are considered as Listed by Underwriters Laboratories Inc.

Report by:

Reviewed by:

EDWARD J. KAMINSKI
Project Engineer
Fire Protection Department

GEORGE E. LAVERICK
Engineering Team Leader
Fire Protection Department

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

Issued: September 4, 1981
Revised: January 28, 2010

REPORT
on
SPRINKLERS, AUTOMATIC AND OPEN

Viking Corp.
Hastings, MI

Copyright © 1981 Underwriters Laboratories Inc.

Underwriters Laboratories Inc. authorizes the above named company to reproduce this Report provided it is reproduced in its entirety.

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

TEST RECORD INDEX	
Description	Test Record
Model M mechanical link sprinklers	1
Model M (intermediate, pendent) using Model C-1 sprinkler guard	2
Model A-1 (concealed, 1/2 in. orifice), 135 and 155°F using 8 mm glass bulbs	3
Model A-1 (concealed, 1/2 in. orifice), 155°F utilizing 8 mm glass bulbs, with alternate mounting base for rigid ceilings	4
Model M (8 mm), 286°F coated with intermediate temperature rated wax	5
Model M (pendent, 1/2 in. orifice) with white and Poly 99- polyester painted surfaces designated M/W and M/B	6
Model M, 8 mm glass bulb, 1/2 in. orifice corrosion resistant and 17/32 in. orifice brass sprinkler	7
Model M (upright, 1/2 in. orifice)	8
Model M, 1/2 and 17/32 in. orifice recessed pendent and upright sprinklers with modified pip cap and G5, 5 mm glass bulbs.	9
Model M (17/32 in. orifice, pendent) rated at 500°F	10
Model M, 1/2 and 17/32 in. orifice, utilizing 5 mm glass bulbs and stainless steel pip cap insert	11
Model M, horizontal side wall, 3/8 and 1/2 in. orifice, utilizing modified pip cap and 5 mm glass bulb	12
Model M, 1/2 and 17/32 in. orifice	13
Loctite 675	14
Model M (1/2 in. orifice) upright and pendent with die cast frame designed with UNS C87400 brass	15
Model M utilizing white E-coating on frame and deflector	16
Model M (upright, 1/2 in. orifice) die cast frame	17
Model M (pendent, 1/2 in. orifice) die cast frame	18
SIN VK202 and VK352 sand cast frame, 8.0K, pendent	19
SIN 100 and VK102, sand cast frame, 5.6K, upright and pendent	20
SIN VK100, VK102, VK200, VK300, VK302, VK350, VK352	21
SIN VK333, 2.8K, horizontal side wall, 3 mm glass bulb and VK202, 8.0K, pendent 5 mm glass bulb	22
Viking sprinklers incorporating Component Recognized Norbulb glass bulbs (3 and 5 mm)	23
VK102, VK124, VK202, VK302 and VK352 pendent sprinklers with a new deflector	24
VK102, VK202, VK302 and VK352 concealed pendent sprinklers	25
Viking sprinklers utilizing Inconel Springs and incorporating Norbulb glass bulbs, die cast frames, as alternate materials.	26
SIN VKXXX sprinklers utilizing an alternate anaerobic adhesive	27
SIN VK100 Sprinkler with alternate Sand Cast Frame	28

Table Continued

<u>Description</u>	<u>Test Record</u>
SIN's VK100, VK108, VK300, VK301, VK315, VK550, VK551, VK552, VK556 and VK558 Sprinklers with an alternate deflector material, UNS-C23000	29
Replacement page	30
SIN's VK200, VK202, VK350, VK352, VK560, and VK566, 8.0 K sprinklers utilizing an alternate spring/pip cap assembly	31
SIN VK910 5.6K	32
Models VK100, VK102, VK104, VK118, VK124, VK300, VK302, VK304, VK310, VK315, VK317, VK600, and VK614, 5.6K-Factor, upright, pendent and horizontal sidewall sprinklers with an alternate QM Alloy frame.	33

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.

Report by:

Reviewed by:

EDWARD J. KAMINSKI
Project Engineer
Fire Protection Department

GEORGE E. LAVERICK
Engineering Team Leader
Fire Protection Department

CERTIFICATE OF COMPLIANCE

Certificate Number 20181121-EX643
Report Reference EX643-19950512
Issue Date 2018-NOVEMBER-21

Issued to: VIKING CORP
210 N INDUSTRIAL PARK RD
HASTINGS MI 49058

This certificate confirms that representative samples of SPRINKLERS, AUTOMATIC AND OPEN
REFER ADDENDUM PAGE FOR MODELS


Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 199 - Automatic Sprinklers for Fire-Protection Service
Additional Information: See the UL Online Certifications Directory at <https://iq.ulprospector.com> for additional information.

This *Certificate of Compliance* does not provide authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



CERTIFICATE OF COMPLIANCE

Certificate Number 20181121-EX643
Report Reference EX643-19950512
Issue Date 2018-NOVEMBER-21

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

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.

Listing	SIN #	DESCRIPTION
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



Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>

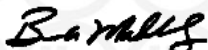


CERTIFICATE OF COMPLIANCE

Certificate Number 20181121-EX643
Report Reference EX643-19950512
Issue Date 2018-NOVEMBER-21

SIN #	DESCRIPTION	REMARKS
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.
SIN's VK100, VK102, VK116, VK200, VK202, VK300, VK302, VK350 and VK352	Nickel Teflon Corrosion Resistant Coating	Ratings- 135, 155, 175, 200, 286, 360 and 500°F. Installation as indicated by deflector.

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



Bruce Mahrenholz, Director North American Certification Program
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>

