



UL 193

STANDARD FOR SAFETY

Alarm Valves for Fire-Protection Service

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL



Documents

Document Sharing Hub

This document is only permissible for use by User of . 8/23/2016 1:21:17 PM

UL Standard for Safety for Alarm Valves for Fire-Protection Service, UL 193

Eleventh Edition, Dated February 26, 2016

Summary of Topics

This new edition of ANSI/UL 193 was issued to incorporate revisions to the Hydrostatic Test Requirements in the Strength of Body Test and Bolt Strength, 10.13 and 28.1; and updates to the Pressure Gauge requirements in 26.2 and 29.1.8.

The revised requirements are substantially in accordance with Proposal(s) on this subject dated November 6, 2015.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form by any means, electronic, mechanical photocopying, recording, or otherwise without prior permission of UL.

UL provides this Standard "as is" without warranty of any kind, either expressed or implied, including but not limited to, the implied warranties of merchantability or fitness for any purpose.

In no event will UL be liable for any special, incidental, consequential, indirect or similar damages, including loss of profits, lost savings, loss of data, or any other damages arising out of the use of or the inability to use this Standard, even if UL or an authorized UL representative has been advised of the possibility of such damage. In no event shall UL's liability for any damage ever exceed the price paid for this Standard, regardless of the form of the claim.

Users of the electronic versions of UL's Standards for Safety agree to defend, indemnify, and hold UL harmless from and against any loss, expense, liability, damage, claim, or judgment (including reasonable attorney's fees) resulting from any error or deviation introduced while purchaser is storing an electronic Standard on the purchaser's computer system.

This document is only permissible for use by User of . 8/23/2016 1:21:17 PM

No Text on This Page

This document is only permissible for use by User of . 8/23/2016 1:21:17 PM

FEBRUARY 26, 2016

1

UL 193



ANSI/UL 193-2016

Standard for Alarm Valves for Fire-Protection Service

First Edition – March, 1937
Second Edition – June, 1952
Third Edition – November, 1967
Fourth Edition – November, 1972
Fifth Edition – December, 1973
Sixth Edition – April, 1979
Seventh Edition – July, 1980
Eighth Edition – January, 1988
Ninth Edition – March, 1993
Tenth Edition – January, 2004

Eleventh Edition

February 26, 2016

This ANSI/UL Standard for Safety consists of the Eleventh Edition.

The most recent designation of ANSI/UL 193 as an American National Standard (ANSI) occurred on February 26, 2016. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, or effective date information.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <http://csds.ul.com>.

UL's Standards for Safety are copyrighted by UL. Neither a printed nor electronic copy of a Standard should be altered in any way. All of UL's Standards and all copyrights, ownerships, and rights regarding those Standards shall remain the sole and exclusive property of UL.

COPYRIGHT © 2016 UNDERWRITERS LABORATORIES INC.

**UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL**



Documents

Document Sharing Hub

No Text on This Page

This document is only permissible for use by User of . 8/23/2016 1:21:17 PM

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL



Documents

Document Sharing Hub

CONTENTS

INTRODUCTION

1 Scope	5
2 Units of Measurement	5
3 Undated References	5
4 Components	5
5 Glossary	6

ASSEMBLY

6 General	6
7 Sizes	7
8 Working Pressures	7
9 Positions	7
10 Bodies and Covers	7
11 Valve Mechanisms	9
11.1 General	9
11.2 Clapper supports	9
12 Clapper Stops	10
13 Clapper Rings and Seat Rings	10
14 Nonmetallic Materials	11
15 Clearances	11
16 Auxiliary Checks	12
17 Retarding Chambers	12
18 Valve Gags	13

PERFORMANCE

19 General	13
20 Metallic Materials Tests	13
21 Nonmetallic Materials Tests	14
21.1 General	14
21.2 Plastic parts	14
21.3 Elastomeric parts (except gaskets)	15
22 Adhesion Test for Resilient Seat Material	15
23 Installation Assembly Test	18
24 Servicing Test for Valves Without Handhole Openings	18
25 Positiveness of Response and Transmission Test	19
26 Hydraulic Friction Loss Test	19
27 Leakage Test	20
28 Strength of Body Test	20
29 Operational Tests	20
29.1 Sensitiveness	20
29.2 Retarding factor	23

MANUFACTURING AND PRODUCTION TESTS

30 General	25
------------------	----

MARKING

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL



Documents

Document Sharing Hub

This document is only permissible for use by User of . 8/23/2016 1:21:17 PM

31 General	25
------------------	----

INSTALLATION INSTRUCTIONS

32 Installation Instructions and Trim Drawings	26
--	----

This document is only permissible for use by User of . 8/23/2016 1:21:17 PM

INTRODUCTION

1 Scope

1.1 These requirements cover alarm valves for use in automatic wet-pipe sprinkler systems for fire-protection service. Alarm valves covered by these requirements are of either the variable- or constant-pressure type and are of the swing-check pattern. Ordinarily, variable-pressure alarm valves are acceptable for constant-pressure service without alteration; however, in some designs, that part of the device having to do with the delaying of alarms may be omitted.

1.2 Alarm valves covered by these requirements include the sizes 1 – 12 inches, inclusive.

1.3 Alarm valves covered by these requirements are intended for installation and use in accordance with the Standard for the Installation of Sprinkler Systems, NFPA 13.

2 Units of Measurement

2.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

3 Undated References

3.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

4 Components

4.1 Except as indicated in 4.2, a component of a product covered by this standard shall comply with the requirements for that component.

4.2 A component is not required to comply with a specific requirement that:

- a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard, or
- b) Is superseded by a requirement in this standard.

4.3 A component shall be used in accordance with its rating established for the intended conditions of use.

4.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

5 Glossary

5.1 For the purpose of this standard, the following definitions apply.

5.2 READY CONDITION – The condition existing when:

- a) An alarm valve is installed in a piping system that has been filled with water from an active water supply having a stable pressure; and
- b) There is no water flow from any outlet on the system downstream from the alarm valve.

5.3 RETARDING FACTOR – The time in seconds that elapses while any specified rate-of-flow is being discharged from the system between the first passage of water through the alarm port of the valve and the completion of the action which is required of the mechanism to actuate the alarm devices. It does not include the time required to withdraw excess pressure from the riser above the valve, nor the delay incident to transmission of water through the piping from the alarm valve to water-motor gongs or other alarm apparatus that may be installed at some distance from the valve.

5.4 SENSITIVENESS – The minimum rate-of-flow from a system outlet, expressed in gallons per minute (gpm) (L/min) that will open the alarm valve, as indicated by continuous operation of both electrical and mechanical alarms. See 5.5.

5.5 SERVICE PRESSURE – The static pressure at the inlet to an alarm valve when the valve is in the ready condition.

5.6 SOLID FLOW SYSTEM – A system in which no air is present in the sprinkler piping.

5.7 WASTE OF WATER – The discharge of any water from the alarm port of an alarm valve that is in the ready condition.

ASSEMBLY

6 General

6.1 Auxiliary components or attachments to alarm valves, such as water-motor-driven alarm gongs, pressure-operated switches, pressure gauges, and the like, are judged under the requirements for such devices or products and also with respect to their particular application. See the Standard for Alarm Accessories for Automatic Water-Supply Control Valves for Fire-Protection Service, UL 753, and the Standard for Indicating Pressure Gauges for Fire-Protection Service, UL 393.

This document is only permissible for use by User of . 8/23/2016 1:21:17 PM