



Second Revision No. 26-NFPA 1960-2023 [Detail]

Changes for Supplemental Ballot:

9.8 Leakage — Nozzles.

Nozzles equipped with a shutoff shall not develop in excess of 12 drops/min ($\frac{1}{2}$ mL/min) through the discharge orifice when tested according to Section 11.511-6.

9.11.1

Master stream nozzles shall be capable of continued operation after being subjected to the rough-handling tests in Section 11.116-10. This requirement shall not apply to flange-mounted nozzles.

9.12.1

Section 9.124-11 shall not apply to portable monitors.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
NFPA_1960_Supplemental_Ballot_FHS-AAA_TC.docx	Chapter 9 cross references.	

Submitter Information Verification

Committee: FHS-AAA

Submittal Date: Fri Jun 02 09:32:03 EDT 2023

Committee Statement

Committee Statement: These changes are being made in order to update/correct some cross references there were overlooked.

Response Message: SR-26-NFPA 1960-2023



Second Revision No. 27-NFPA 1960-2023 [Detail]

Changes for Supplemental Ballot:

A.1.3

~~Any AHJs incorporating NFPA 1963, NFPA 1964, NFPA 1931, NFPA 1961, or NFPA 1936 or any combination thereof, can replace those references with chapters and still reference similar content. For example, if an AHJ incorporated the 2019 edition of NFPA 1963 (i.e., in accordance with the 2019 edition of NFPA 1963), and they wish to update to the latest information, they can do so by incorporating Chapters 1 through 8 of the 2024 edition of NFPA 1960 (i.e., in accordance with Chapters 1 through 8 and Annexes A through C of the 2024 edition of NFPA 1960). Beginning with the publication of NFPA 1960, new editions of NFPA 1963, NFPA 1964, NFPA 1931, NFPA 1961, and NFPA 1936 will not be published as separate, standalone standards. Where an authority having jurisdiction (AHJ) wants to reference the latest edition of one or more of the previous standards, the referencing language should refer to NFPA 1960 or the specific chapters of NFPA 1960, as identified in Section 1.3.~~

The numbers found in parentheses at the end of each chapter title refer to the former standalone documents and are intended to help users navigate between this standard and the former standalone documents.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
1960_FHS-AAA_Supplemental_Ballot_A.1.3.docx		

Submitter Information Verification

Committee: FHS-AAA

Submittal Date: Fri Jun 02 09:36:34 EDT 2023

Committee Statement

Committee Statement: This change to A.1.3 is being done as part of the consolidation project to ensure that all documents in the project use the same boilerplate text as well as to reduce any confusion with our stakeholders, end users, and ANSI.

Response Message: SR-27-NFPA 1960-2023



Second Revision No. 7-NFPA 1960-2023 [Section No. 2.4]

2.4 References for Extracts in Mandatory Sections.

NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances*, 2019 edition.

NFPA 1901, ~~*Standard for Automotive Fire Apparatus*, 2016 edition.~~

NFPA 1900, *Standard for Aircraft Rescue and Firefighting Vehicles, Automotive Fire Apparatus, Wildland Fire Apparatus, and Automotive Ambulances*, 2024 edition.

NFPA 1961, ~~*Standard for Fire Hose*, 2013 edition.~~

NFPA 1962, *Standard for the Care, Use, Inspection, Service Testing, and Replacement of Fire Hose, Couplings, Nozzles, and Fire Hose Appliances*, 2018 edition.

NFPA 1964, ~~*Standard for Spray Nozzles*, 2018 edition.~~

Submitter Information Verification

Committee: FHS-AAA

Submittal Date: Wed Mar 08 14:59:07 EST 2023

Committee Statement

Committee Statement: These changes are being made to update referenced and extracted documents.

Response Message: SR-7-NFPA 1960-2023



Second Revision No. 20-NFPA 1960-2023 [New Section after 3.3.49]

3.3.105 Trade Size.

The following are considered the trade sizes of fire hose: 1, 1 1/2, 1 3/4, 2, 2 1/4, 2 1/2, 2 3/4, 3, 3 1/2, 4, 4 1/2, 5, and 6 in. (25, 32, 44, 51, 57, 64, 70, 76, 89, 102, 114, 127, and 152 mm).

Submitter Information Verification

Committee: FHS-AAA

Submittal Date: Mon Mar 20 11:25:18 EDT 2023

Committee Statement

Committee Statement: The committee is adding this definition since the term is used in the standard but has not yet been defined. By adding this definition it will provide the end users with a clear understanding of the use of the term and what sizes are included.

Response Message: SR-20-NFPA 1960-2023

Public Comment No. 1-NFPA 1960-2022 [New Section after 3.3.49]



Second Revision No. 8-NFPA 1960-2023 [Section No. 3.3.66.1]

3.3.66.1 *Spray Nozzle.*

A nozzle intended for connection to a hose line or monitor to discharge water in either a spray pattern or a straight stream pattern as selected by the operator. [~~1964~~, -2018]

Submitter Information Verification

Committee: FHS-AAA

Submittal Date: Wed Mar 08 15:02:22 EST 2023

Committee Statement

Committee Statement: This change is being made since 1964 has been consolidated into this standard.

Response Message: SR-8-NFPA 1960-2023



Second Revision No. 9-NFPA 1960-2023 [Section No. 3.3.73.3]

3.3.73.3 *High Pressure.*

Pump discharge pressure from 500 psi (3500 kPa) to less than 1100 psi (7600 kPa). [~~1901~~, 2016 1900, 2024]

Submitter Information Verification

Committee: FHS-AAA

Submittal Date: Wed Mar 08 15:03:06 EST 2023

Committee Statement

Committee Statement: This change is being made in order to update to extract citation to the new NFPA 1900.

Response Message: SR-9-NFPA 1960-2023



Second Revision No. 10-NFPA 1960-2023 [Section No. 3.3.96]

3.3.96 Suction Hose.

A hose that is designed to prevent collapse under vacuum conditions so that it can be used for drafting water from below the pump (lakes, rivers, wells, etc.). [~~1961~~, -2013]

Submitter Information Verification

Committee: FHS-AAA

Submittal Date: Wed Mar 08 15:04:20 EST 2023

Committee Statement

Committee Statement: This change is being made as NFPA 1961 has been consolidated into this standard.

Response Message: SR-10-NFPA 1960-2023



Second Revision No. 11-NFPA 1960-2023 [Section No. 3.3.107.3]

3.3.108.3 *Slow-Operating Valve.*

A valve that has a mechanism to prevent movement of the flow-regulating element from the fully closed position to the fully opened position or vice versa in less than 3 seconds. [~~1901~~, 2016 1900, 2024]

Submitter Information Verification

Committee: FHS-AAA

Submittal Date: Wed Mar 08 15:05:11 EST 2023

Committee Statement

Committee Statement: This change is being made to update the extract citation to the new NFPA 1900.

Response Message: SR-11-NFPA 1960-2023



Second Revision No. 22-NFPA 1960-2023 [Section No. 9.2.2]

9.2.2

Basic spray nozzles shall flow no less than the rated discharge in at least one position within the range of spray pattern adjustment and no more than ~~40 percent over~~ the rated discharge discharge rate specified in 9.2.2.1 through 9.2.2.3 at the rated pressure when tested in accordance with Section 11.1.

9.2.2.1

Basic spray nozzles with a rated discharge of 66 gpm (~~50~~ 250 L/min) or less shall flow no less than the rated discharge in at least one position within the range of spray pattern adjustment and no more than 7 gpm (26.5 L/min) over the rated discharge at the rated pressure when tested in accordance with Section 11.1.

9.2.2.2

Basic spray nozzles with a rated discharge greater than 66 gpm (~~50~~ 250 L/min) shall flow no less than the rated discharge in at least one position within the range of spray pattern adjustment and no more than 10 percent over the rated discharge at the rated pressure when tested in accordance with Section 11.1.

9.2.2.3

Basic spray nozzles with a rated discharge of 23 gpm (87 L/min) or less shall flow no less than the rated discharge in at least one position within the range of spray pattern adjustment and no more than 3 gpm (11 L/min) over the rated discharge at the rated pressure when tested in accordance with Section 11.1.

Submitter Information Verification

Committee: FHS-AAA

Submittal Date: Mon Mar 20 12:26:04 EDT 2023

Committee Statement

Committee Statement: The current text indicates that the measured flow shall not be less than the rated discharge nor more than a nominal 10 percent greater than the rated discharge when tested at both the straight stream and wide angle positions. This flow rate performance criteria for the basic spray nozzle is essentially the same as the criteria for constant gallonage nozzles which not in alignment with the design of many of the basic spray nozzles. The Annex text for the definition of a basic spray nozzle clearly indicates that the flow rate will vary for these nozzle types. This revision provides clarification that the rated discharge can be measured at any point within the nozzle adjustment range which allows for a variation in flow rate to occur. Also, this revision addresses the inconsistency between the criteria in 9.2.2 and the subsequent subparagraphs.

Response Message: SR-22-NFPA 1960-2023



Second Revision No. 23-NFPA 1960-2023 [Section No. 9.2.3]

9.2.3

Constant gallonage spray nozzles shall flow no less than the rated discharge ~~at the rated pressure~~ and no more than ~~10 percent over the rated discharge~~ discharge rate specified in 9.2.3.1 through 9.2.3.2 at the rated pressure when tested in accordance with Section 11.1.

9.2.3.1

Constant gallonage spray nozzles with a rated discharge of ~~66 gpm~~ (50 250 L/min) ~~gpm~~ or less shall flow no less than the rated discharge and no more than 7 gpm (26.5 L/min) over the rated discharge at the rated pressure when tested in accordance with Section 11.1.

9.2.3.2

Constant gallonage spray nozzles with a rated discharge greater than 66 gpm (50 250 L/min) shall flow no less than the rated discharge and no more than 10 percent over the rated discharge at the rated pressure when tested in accordance with Section 11.1.

Submitter Information Verification

Committee: FHS-AAA

Submittal Date: Mon Mar 20 12:33:29 EDT 2023

Committee Statement

Committee Statement: This revision addresses the inconsistency between the criteria in 9.2.3 and the subsequent subparagraphs. It also corrects the conversion from gallons per minute to liters per minute.

Response Message: SR-23-NFPA 1960-2023



Second Revision No. 25-NFPA 1960-2023 [Section No. 18.1]

18.1 Diameter.

~~The hose shall have an internal diameter of not less than the trade size of the hose.~~

18.1.1*

The hose shall have an internal diameter (ID) of not less than the trade size of the hose.

A.18.1.1

The friction loss characteristics of fire hoses are an important consideration in the selection of hose. Friction loss varies considerably depending on the construction and design of the hose, the roughness of the lining, and its internal diameter ID, which may might be different for different grades of hose. The type of couplings can also affect the friction loss.

18.1.2

Hose with a trade size of 1, 1 1/2, 1 3/4, 2, 2 1/4, 2 1/2, or 2 3/4 in. (25, 32, 44, 51, 57, 64, and 70 mm) shall have an ID no greater than 3/16 in. (4.76 mm) for the trade size as measured in UL 19, *Lined Fire Hose and Hose Assemblies*.

18.1.3

Hose with a trade size of 3, 3 1/2, 4, 4 1/2, 5, or 6 in. (76, 89, 102, 114, 127, and 152 mm) shall have an ID of not less than the trade size of the hose and not greater than 1/2 in. (12.7 mm) the trade size, as measured in UL 19 *Lined Fire Hose and Hose Assemblies*.

18.1.4*

The ID of a hose shall be measured in accordance with Section 5 of UL 19, *Lined Fire Hose and Hose Assemblies*.

A.18.1.4

ID of fire hose is measured uncharged, with a tapered plug.

18.1.5*

The charged ID at 50 psi and 150 psi shall be publicly published by the hose manufactures for hose sizes less than 3 in. (76 mm).

A.18.1.5

When a hose is filled with water and pressurized it expands or "swells." The amount of swell is related to the construction of the hose and the inner and outer jacket's ability to control it. The charged ID of the fire hose is important for firefighters to understand as it affects the flow range of the hose, the size of nozzle tip(s) the hose can be paired with, the amount of water in the hose (a factor in charged weight of the hose), the majority of the friction loss coefficient of the hose, and the expected charged outside diameter of the hose. The charged ID of a hose also plays a crucial role in its maneuverability and the ability of firefighters to quickly advance a charged hand line.

18.1.6*

The charged outside diameter (OD) at 150 psi shall be publicly published by the hose manufactures for hose sizes less than 3 in. (76 mm).

A.18.1.6

Charged outside hose diameter plays a crucial role in hose maneuverability. Charged internal diameter (ID) along with the thickness of the waterway liner and the thickness of both the inner and outer jackets impacts the charged OD. Charged OD affects the ability of the firefighter(s) to advance the line, especially in the medium diameter attack package (i.e., 2, 2 1/4, 2 1/2 hose). A smaller charged OD allows the firefighter to better grip the hose in their hand, especially when wearing gloves.

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
FHS-AAA_1960_Text_for_18.1.docx	New text for 18.1 with related Annex A material.	
FHS-AAA_1960_FR-25_18.1.docx	For prod use	

Submitter Information Verification

Committee: FHS-AAA

Submittal Date: Wed Mar 22 18:01:51 EDT 2023

Committee Statement

Committee Statement: The committee has added this new text and related annex A items due to the fact that these topics were not previously included in the standard and by adding these requirements it will provide the end users with a clear way to measuring diameter in hoses that are charged as well as to what the tolerances of hoses are regarding how much they can expand while charged and being measured. These changes also make clearer when this data is to be reported to the end user upon acquisition of hoses.

Response Message: SR-25-NFPA 1960-2023

[Public Comment No. 6-NFPA 1960-2022 \[New Section after A.18.1\]](#)

[Public Comment No. 7-NFPA 1960-2022 \[New Section after 18.1\]](#)

[Public Comment No. 3-NFPA 1960-2022 \[New Section after 18.1\]](#)

[Public Comment No. 5-NFPA 1960-2022 \[New Section after 18.1\]](#)

[Public Comment No. 9-NFPA 1960-2022 \[New Section after A.18.1\]](#)

[Public Comment No. 8-NFPA 1960-2022 \[New Section after A.18.1\]](#)

[Public Comment No. 4-NFPA 1960-2022 \[New Section after 18.1\]](#)



Second Revision No. 24-NFPA 1960-2023 [Section No. A.17.1.1]

A.17.1.1

Fire hose is one of the most important tools that a firefighter uses. Fire hose must provide many years of reliable service along with the couplings, nozzles, adapters, and appliances that are used with fire hose. Selection, care, use, and maintenance of fire hose should be conducted in accordance with NFPA 1962 .

Annex B of NFPA 1962 provides helpful guidance on the specification and procurement of fire hose.

All fire hose has an expected service life. That life will depend on a number of factors, such as the initial quality of the hose, the type of service to which it is subjected, and the care it receives during its life. Users should develop a fire hose inspection and care program based on NFPA 1962. That program should also address the retirement of fire hose.

One of the reasons for keeping good records of fire hose as required by NFPA 1962 is to evaluate how different fire hoses perform over time. This will provide the experience the users need to help them determine what a useful service life is for different types of hose and make decisions on when fire hose should be retired.

Limited testing of in-service fire hose by the Fire Equipment Manufacturers Association indicated an increased risk of failure after a 10-year time period. The testing looked at the reduction in burst pressure, ozone degradation, liner adhesion and degradation, hose strength, normal wear patterns, and UV degradation of fibers.

While all users should establish their own retirement schedule, fire departments should give careful consideration to a 10-year maximum service life under normal operating conditions.

Submitter Information Verification

Committee: FHS-AAA

Submittal Date: Wed Mar 22 09:00:03 EDT 2023

Committee Statement

Committee Statement: The committee is adding this language to provide the end user continued information on the importance of the selection, care, and maintenance of fire hose and the importance of specification and purchasing process relating to fire hose. By adding this additional language, it also gives an increased visibility to Annex B of NFPA 1962, which has a lot of useful and helpful information for the end user when purchasing and specifying fire hose.

Response Message: SR-24-NFPA 1960-2023