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NEMA STANDARDS PUBLICATION/NO. LA-1

Surge Arresters

NEMA

RICAL MANUFACTURERS ASSOCIATION ■ 2101 L STREET N.W., WASHINGTON, D.C. 20037

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SURGE ARRESTERS

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Foreword

These standards are periodically reviewed by the Surge Arrester Section of NEMA for any revisions necessary to keep them up to date with advancing technology. Your comments or proposed revisions should be submitted to:

Manager, Engineering Department
National Electrical Manufacturers Association
2101 L Street, N.W.
Washington, D.C. 20037

Publication No. LA 1-1986 revises and supersedes LA 1-1976 (R 1980).

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Scope

The standards contained in this publication apply to all valve surge arresters for alternating-current systems, including arresters which are an integral part of other apparatus.

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Section 1

REFERENCED STANDARDS

The American National Standard for *Surge Arresters for Alternating-Current Power Circuits*, ANSI/IEEE C62.1-1984, has been approved as a NEMA Standard and constitutes the major portion of the NEMA Standards Publication for *Surge Arresters*, LA 1-1986.

The American National Standard Guide for *Application of Valve Type Lightining Arresters for A-C Systems*, C62.2-1981, may also be of interest to users of this publication.

Copies of both are available from:

American National Standards Institute
1430 Broadway
New York, NY 10018

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Section 2

GENERAL

The standards given on the following pages of this publication provide revisions, additional standards, and information which have been approved by NEMA but which are not included in C62.1-1984.

NEMA Standard 8-20-1986.

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Section 3

TESTING STANDARDS

INTERNAL IONIZATION AND RADIO INFLUENCE VOLTAGE TESTS

The following paragraph has been approved by NEMA to supplement Section 8.8 in American National Standard C62.1-1984:

8.8 INTERNAL IONIZATION AND RADIO INFLUENCE VOLTAGE TESTS

The test equipment, practices, and procedures for making the tests shall be as specified in ANSI/IEEE C62.1, Section 8.8. The permissible maximum radio influence and internal ionization voltage levels shall be as given in Table 3-1.

NEMA Standard 8-20-1986.

Table 3-1
MAXIMUM RADIO INFLUENCE AND INTERNAL IONIZATION VOLTAGE LEVELS

Surge Arrester Voltage Rating, kV (1)	Maximum Radio Influence Voltage, Microvolts (2)	Maximum Internal Ionization Voltage, Microvolts (3)	Surge Arrester Voltage Rating, kV (1)	Maximum Radio Influence Voltage, Microvolts (2)	Maximum Internal Ionization Voltage, Microvolts (3)
0.175	250	50	—	—	—
0.650	250	50	48	1250	150
1	250	50	60	1250	150
3	250	50	72	1250	150
6	250	50	90	2500	250
9	250	50	96	2500	250
10	250	50	108	2500	250
12	250	50	120	2500	250
15	250	50	144	2500	250
18	650*	50	168	2500	300
21	650*	50	180	2500	300
24	650	50	192	2500	300
25	250	50	—	—	—
27	250*	50	240	2500	300
30	650*	50	258	2500	300
36	1250	150	276	2500	300
39	1250	150	294	2500	300

*For distribution arresters rated 18, 21, 27, and 30 kilovolts, the maximum radio influence voltage shall be 250 microvolts.

NOTE I—Maximum permissible ambient radio influence or ionization voltages, according to whichever test is being performed, will be ½ of the levels specified in columns 2 and 3.

NOTE II—No levels of radio influence or internal ionization voltage are included for surge arresters rated above 294 kV because of the present lack of data.

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September 1984

NEMA STANDARDIZATION

The purpose of NEMA Standards, their classification and status are set forth in certain clauses of the NEMA Bylaws, which are quoted below:

Purpose of Standards

National Electrical Manufacturers Association Standards are adopted in the public interest and are designed to eliminate misunderstandings between the manufacturer and the purchaser and to assist the purchaser in selecting and obtaining the proper product for its particular need. Existence of a National Electrical Manufacturers Association Standard does not in any respect preclude any member or nonmember from manufacturing or selling products not conforming to the standard.

(Bylaw—Art. V, Sec. 1)

Definition of a Standard

A standard of the National Electrical Manufacturers Association defines a product, process or procedure with reference to one or more of the following: nomenclature, composition, construction, dimensions, tolerances, safety, operating characteristics, performance, rating, testing, and the service for which they are designed.

(Bylaw—Art. V, Sec. 2, Subsection A)

Dimensions

Where dimensions are given for interchangeability purposes, alternate dimensions satisfying the other provisions of the standards publication may be capable of otherwise equivalent performance.

(NEMA Policy Memorandum 84-2, dated June 7, 1984)

Classes of Standards

National Electrical Manufacturers Association Standards are of two classes:

1. NEMA Standard, which relates to a product commercially standardized and subject to repetitive manufacture, which standard has been approved by at least 90 percent of the members of the Subdivision eligible to vote thereon;
2. Suggested Standard for Future Design, which may not have been regularly applied to a commercial product, but which suggests a sound engineering approach to future development, which standard has been approved by at least two-thirds of the members of the Subdivision eligible to vote thereon.

(Bylaw—Art. V, Sec. 2, Subsection B)

Authorized Engineering Information

Authorized Engineering Information consists of explanatory data and other engineering information of an informative character not falling within the classification of NEMA Standard or Suggested Standard for Future Design.

(Bylaw—Art. V, Sec. 6, 1st Sentence)

Official Standards Proposal

An Official Standards Proposal is an official draft of a proposed standard which is formally recommended to an outside organization(s) for consideration, comment and/or approval.

(Bylaw—Art. V, Sec. 4, Subsection A)

Identification of Status

Standards in NEMA Standards Publications are identified in the foreword or following each standard as "NEMA Standard" or "Suggested Standard for Future Design." These indicate the status of the standard. These words are followed by a date which indicates when the standard was adopted in its present form by the Association.

The material identified as "Authorized Engineering Information" and "Official Standards Proposal" is treated similarly.

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