

American Standard Requirements, Terminology, and Test Code for Distribution, Power, and Regulating Transformers, and Reactors Other Than Current-Limiting Reactors

SECTION 12.10. TRANSFORMERS, 67,000 VOLTS AND BELOW,
501 THROUGH 10,000 KVA, 3 PHASE; 501 THROUGH 5,000 KVA, 1 PHASE

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Approved October 29, 1958
AMERICAN STANDARDS ASSOCIATION
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Published by
AMERICAN STANDARDS ASSOCIATION
INCORPORATED
70 East Forty-fifth Street
New York 17, N. Y.

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Universal Decimal Classification 621.314.2

PRINTED IN U.S.A

D442 M1258/150

Foreword

(This Foreword is not a part of American Standard Requirements, Terminology, and Test Code for Distribution, Power, and Regulating Transformers, and Reactors Other Than Current-Limiting Reactors, C57.12-1958.)

The Sectional Committee on Transformers, Regulators, and Reactors, C57, of the American Standards Association, Incorporated, has for a number of years been developing and correlating standards on transformers. The data used in this work have been gathered from many sources, including the standards of the American Institute of Electrical Engineers and the National Electrical Manufacturers Association, reports of committees of the Edison Electric Institute, and others. This work resulted in the publication of standards in 1942 which were revised and greatly expanded in 1948 and 1949.

In 1956 a subsequent edition was approved and published. It was comprised of a revision and editorial consolidation of preceding standards on distribution, power, and regulating transformers, namely, American Standard Requirements for Distribution, Power, and Regulating Transformers, and Reactors Other Than Current-Limiting Reactors, C57.12-1949, American Standard Test Code for Distribution, Power, and Regulating Transformers, C57.22-1948, and American Standard Requirements for Transformers—67,000 Volts and Below; 501 Through 10,000 kva, 3 Phase; 501 Through 5,000 kva, 1 Phase, C57.12a-1954. In addition, in order to eliminate cross-references wherever possible, the consolidation contained excerpts from other standards of the C57 family.

In 1957 two supplements to American Standard C57.12-1956 were approved and published. These were American Standard Requirements for Overhead-Type Distribution Transformers, C57.12c, Section 20, and C57.12d, which also revised certain sections of the 1956 standard.

This standard is comprised of a revision of American Standard C57.12-1956 and of the two supplements, C57.12c and C57.12d, and, in addition, incorporates, as part of the approved American Standard, Section 30 on three-phase load-tap-changing transformers, which had been published in 1956 as a Proposed American Standard recommended for use by the sectional committee on transformers.

The original intention of the C57 Sectional Committee was to incorporate in one volume all the standards for any one product line. The American Standards on instrument transformers, step-voltage and induction-voltage regulators, and current-limiting reactors were published in this way. In this case, however, it is possible that some of the sections of the standard will require revision sooner than others. Therefore, it was decided to issue each section as a separate pamphlet. C57.12-1958 is thus comprised of six booklets, as follows:

12-00. General

12-10. Transformers, 67,000 Volts and Below, 501 through 10,000 kva, 3 Phase; 501 Through 5,000 kva, 1 Phase

12-20. Overhead-Type Distribution Transformers, 67,000 Volts and Below, 500 kva and Smaller

12-30. Three-Phase Load-Tap-Changing Transformers, 67,000 Volts and Below, 1,000 kva Through 10,000 kva

12-80. Terminology

12-90. Test Code

Suggestions for improvement gained in the use of this standard will be welcomed. They should be sent to the American Standards Association, Incorporated, 70 East Forty-fifth Street, New York 17, N. Y.

The organizations which participated in this work and the names of their representatives, as listed at the time this standard was submitted to the sectional committee for approval, are as follows:

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Appreciation is expressed to the following former members of the subcommittee who participated earlier in the development of this standard: G. W. Clothier, J. A. Elzi, J. H. Vivian, and J. L. Cross.

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**American Standard Requirements, Terminology, and Test Code for
Distribution, Power, and Regulating Transformers, and Reactors
Other Than Current-Limiting Reactors**

**12-10. TRANSFORMERS
67,000 Volts and Below
501 through 10,000 kva, 3 Phase
501 through 5,000 kva, 1 Phase**

12-10.000 General

12-10.010 Scope

12-10.011 This section covers electrical characteristics and mechanical features of 60-cycle, 2-winding, mineral-oil-immersed transformers rated 501 to 5,000 kva, inclusive, single-phase; 501 to 10,000 kva, inclusive, three-phase; high-voltage, 2,400

to 67,000 volts, inclusive; low-voltage, 480 to 14,400 volts, inclusive, generally used for step-down purposes.

12-10.012 All characteristics and definitions, except as specifically covered in this section, shall be in accordance with sections 12-00 and 12-80 of this standard.*

PART I

Basic Standard Electrical Characteristics and Mechanical Features

*(See Part II for Other Characteristics and Features
Which May Be Required for Some Applications)*

12-11. RATINGS

12-11.100 Transformer Ratings

12-11.110 Kilovolt-ampere ratings for single- and three-phase self-cooled (OA) transformers shall be as shown in Table 12-11.110.

12-11.111 These ratings are continuous and based on not exceeding either a 55 C average con-

ductor temperature rise or a 65 C hot-spot temperature rise at altitudes of 3300 feet or less.

**12-11.500 Kilovolt-Ampere and
Voltage Ratings**

12-11.510 Kilovolt-ampere and voltage ratings for single- and three-phase self-cooled (OA) transformers shall be as shown in Tables 12-11.510a and 12-11.510b.

12-11.530 Voltage taps for single- and three-phase transformers shall be as shown in Tables 12-12.110a and b.

**TABLE 12-11.110
kva Ratings**

Single Phase kva	Three Phase kva
833	750
1,250	1,000
1,667	1,500
2,500	2,000*
3,333	2,500
5,000	3,750
	5,000
	7,500
	10,000

* See Table 12-11.510b for voltages for which the 2000 kva rating is available.

**12-12. INSULATION CLASS AND
DIELECTRIC TESTS**

12-12.100 Insulation Levels

Insulation levels specified herein shall be in accordance with 12-02.

12-12.110 Insulation class, and related basic impulse insulation level for single- and three-phase transformers shall be as shown in Tables 12-12.110a, b, and c.

* Each of the six sections of this standard has been published as a separate booklet.