

IEEE Standard for Sealed Dry-Type Power Transformers, 501 kVA and Higher, Three-Phase, with High-Voltage 601 to 34500 Volts, Low-Voltage 208Y/120 to 4160 Volts— General Requirements

IEEE Power and Energy Society

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Transformers Committee

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Sponsor

**Transformers Committee
of the
IEEE Power and Energy Society**

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Abstract: Characteristics relating to performance, limited electrical and mechanical interchangeability, and guidance to assist in the proper selection of sealed dry-type transformers are provided in this standard. Specific rating combinations are described in the range from 750 to 5000 kVA inclusive, with high-voltage 2400 to 34500 Volts inclusive and low-voltage 208Y/120 to 4160 Volts inclusive. Sealed dry-type power transformers filled with only dry air or nitrogen, at the time of filling, are considered. Other gases are not considered in this standard. This standard does not apply to other types of transformers, such as specialty, ventilated dry-type, pad-mounted dry-type, liquid immersed, instrument, regulating, furnace, mine, and rectifier transformers.

Keywords: ambient temperature, BIL, construction, current transformer, dry air, dry-type, electrical, gas, GA, grounding, IEEE C57.12.52™, insulation level, jacking, limiting temperature, mechanical, nitrogen, percent impedance voltage, performance, rating, sealed dry-type power transformers, self-cooled, surge arresters, taps, temperature rise, tests, transformer, transformer tank, unit substation, winding temperature

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This dry-type transformer standard describes sealed dry-type transformers with self-cooled kilovolt-ampere ratings 501 to 5000 and high voltages 601 to 34 500 volts.

This standard is the result of an effort encompassing the interests of users, manufactures, and others dedicated to developing voluntary consensus standards primarily for dry-type transformers.

The gases used to fill sealed dry type transformers covered by this standard are limited to dry air and nitrogen at the time of filling, as this is present industry practice in North America. Previous versions of this standard dealt with other gases that are no longer used. IEC 60076-15, International Standard Power transformers—Part 15 Gas-filled power transformers deals with gases not covered in this standard, such as sulfur hexafluoride SF₆. This gas is also not used in industry practice in North America.

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1. Overview

1.1 Scope

This standard is for sealed dry-type transformers, 501 kVA and larger, with high-voltage 601 to 34500 volts inclusive and low-voltage 208Y/120 to 4160 volts inclusive. This standard is intended to set forth characteristics relating to performance, limited electrical and mechanical interchangeability, and to assist in the proper selection of such equipment.

This standard does not apply to other types of transformers, such as specialty, ventilated dry-type, pad-mounted dry-type, liquid immersed, instrument, regulating, furnace, mine, and rectifier operations.