

# 600V CLASS DRY-TYPE GENERAL PURPOSE DISTRIBUTION TRANSFORMER SPECIFICATION GUIDE

## 1. Scope

1.1. The basis for this specification is the MGM Transformer Company design for dry-type distribution transformers with primary and secondary voltages of 600V and less and capacity ratings through 1500kVa.

Note: Paragraphs and words marked in [ ] are alternates. Select only one.

This specification together provides the technical requirements for the design, manufacture, and testing of 600V class dry-type general purpose transformers. The service conditions shall be as specified in the “Usual Service Conditions” section of C57.12.01.

This specification covers only the general requirements of the transformer.

## 2. Codes and Standards

2.1. The ventilated dry-type transformers and protection devices in this specification are designed and manufactured according to latest revision of the following standards (unless otherwise noted).

2.1.1. Transformers through 1500kVa, 3-Phase and through 333kVa 1-Phase shall be listed by Underwriters Laboratories.

2.1.2. Conform to the requirements of ANSI/NFPA 70.

2.1.3. Transformers are to be manufactured and tested in accordance with NEMA ST20.

2.1.4. IEEE C57.12.01, General Requirements for Dry-Type Distribution and Power Transformers Including Those with Solid Cast and / or Resin-Encapsulated Windings



## 2.2. National Electrical Code (NEC)

It shall be the Seller's responsibility to be, or to become, knowledgeable of the requirements of these Codes and Standards. Any required changes or alterations to the equipment to meet the Codes and Standards requirements shall be at the expense of the Seller.

Equipment proposed by the Seller that cannot fully meet the requirements of this specification shall have all exceptions clearly stated in the proposal. No exception shall be allowed, unless approved by the Buyer in writing.

## 3. Quality Assurance

The manufacturer shall have a well-documented quality assurance program, which includes procedures for all activities in order entry, design, material procurement, manufacturing processes, testing, shipping and post shipment.

The manufacturer shall have specialized in the design, manufacture and assembly of dry-type distribution transformers for a minimum of {25} years.

The transformers shall be manufactured by a company, which is certified to ISO, 9001:2000 for design and manufacture of Power, Distribution and Specialty Dry Type Transformers.

The test floor shall have a documented calibration program. All equipment shall receive regular calibrations. Calibration standards shall be traceable to National Bureau of Standards. Records of all equipment calibration shall be made available to the Buyer upon request.

Measured values of electric power, voltage, current, resistance, and temperatures are used in the calculations of reported data. To ensure sufficient accuracy in the measured and calculated data the test system accuracy requirements listed in ANSI C57.12.01 Table 3 shall be met as a minimum.

## 4. Products

### 4.1. Manufacturer Information

- 4.1.1. Transformers shall be manufactured by MGM Transformer Company.
- 4.1.2. The manufacturer shall be a registered firm in accordance with ISO 9001:2000 SIC 3612 (US); which is the design and manufacture of low voltage dry type power, distribution and specialty transformers.

### 4.2. Ratings Information

- 4.2.1. All insulating materials are to exceed NEMA ST20 standards and be rated for 220oC UL component recognized insulation system.
- 4.2.2. Transformers in most cases shall have a minimum of (4) 2.5% full capacity primary taps.
- 4.2.3. Transformers 15kVA and larger shall be 150oC temperature rise above 30oC ambient. The maximum temperature of the top of the enclosure shall not exceed 50oC rise above a 30oC ambient.
- 4.2.4. The transformer(s) shall be rated as indicated in the following schedule:
  - Identification Number(s)
  - kVA
  - Rating
  - Voltages
  - Phase
  - Frequency

### 4.3. Construction

- 4.3.1. Transformer coils shall be of the continuous wound construction and shall be impregnated with nonhygroscopic, thermosetting varnish
- 4.3.2. All cores to be constructed with low hysteresis and eddy current losses. Magnetic flux densities are to be kept well below the saturation point to prevent core overheating. The completed core and coil shall be bolted to the base of the enclosure but isolated by means of rubber vibration-absorbing mounts. There shall be no metal-to-metal contact between the core and coil and the enclosure except for a flexible safety ground strap. Sound isolation systems requiring the complete removal of all fastening devices will not be acceptable.

- 4.3.3. The core of the transformer shall be visibly grounded to the enclosure by means of a flexible grounding conductor sized in accordance with applicable UL and NEC standards.
- 4.3.4. The transformer enclosures shall be ventilated and be fabricated of heavy gauge, sheet steel construction. The entire enclosure shall be finished utilizing a continuous process consisting of degassing, cleaning and phosphatizing, followed by electrostatic deposition of polymer polyester powder coating and baking cycle to provide uniform coating of all edges and surfaces. The coating shall be UL recognized for outdoor use. The coating color shall be ANSI 61.

#### 4.4. Documentation

- 4.4.1. When requested, manufacturer shall provide copies of following documents to buyer for review:
- A certified test report containing minimum information per IEEE C57.12.91
  - Installation, Maintenance, and Operating Instructions
  - Outline Drawing
  - Connection Diagram
  - Nameplate Drawings
  - Spare Parts List
  - Applicable Wiring Diagrams

#### 4.5. Sound Levels

- 4.5.1. Sound levels shall be warranted by the manufacturer not to exceed the following:
- 15 to 50KVA - 45dB
  - 51 to 150kVA - 50dB
  - 151 to 300kVA - 55dB
  - 301 to 500kVA - 60dB
  - 501 to 700kVA - 62dB
  - 701 to 1000kVA - 64dB
  - 1001 to 1500kVA - 65dB



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Note: Lower sound levels may be desirable for critical areas such as hospitals, schools or office areas. Contact an MGM Transformer Company representative for specific recommendations.

#### 4.6. Optional Accessories

4.6.1. [Provide weathershields for units ID#\_\_\_\_\_750kVA max.]

4.6.2. [Provide wall mounting brackets for units ID#\_\_\_\_\_75kVA max.]