

NEW DOE 2016 MEDIUM VOLTAGE TRANSFORMERS

Medium voltage dry-type transformers are used to step down incoming high voltage power to utilization voltages for residential, commercial, institutional and industrial applications.



Medium Voltage Transformers, 2.5–5kV Class

Medium voltage dry-type transformers are used to step down incoming high voltage power to utilization voltages for residential, commercial, institutional and industrial applications. Offering many advantages over liquid-filled transformers, they are ideally suited for indoor application close to the load for more efficient distribution of power at lower operating costs.

Acme Electric medium voltage dry-type transformers are air-cooled by natural convection, eliminating the principal hazards associated with liquid-filled transformers as well as the need for expensive fireproof vaults and venting systems for toxic gas. They are generally smaller, lighter, and easier to maintain than liquid-filled transformers, requiring only occasional cleaning and inspection. They are encased in a ventilated steel enclosure with no exposed live parts, making them ideal for installation in buildings such as hospitals, theaters, schools, office buildings, and factories.

Because Acme Electric gives close attention to detail and workmanship throughout design, production, and inspection, our medium voltage dry-type transformers are designed for economical, trouble-free service for a life expectancy of 25 years or more. In particular, we optimize the design for BIL levels, short circuit strength, losses, temperature rise, corona-free operation, and low sound levels so that there is no need to over-specify to ensure quality and long, economical performance.

DOE 2016 and CSA C802.2

Our new line of medium voltage transformers not only meets but exceeds the new, more stringent DOE 2016 Energy Efficiency Standards U.S. DOE 10 CFR Part 431Subpart K, and Canadian Energy Efficiency Regulations SOR/94-651.

- UL Listed
- All units are cUL Listed per UL-1562 and CSA C22.2 No. 47.

Basic Impulse Level

One of the most important considerations in the specification and design of medium voltage dry type transformers is the basic impulse level (BIL). This is the ability of the transformer to withstand impulse voltages impressed upon it by switching surges or lightning. BIL ratings are per IEEE Std C57.12.01.

Corona

Corona is the ionization of air surrounding a high voltage electrode. Corona discharge can reduce transformer life by

1. Gradually breaking down the chemistry of insulation system
2. Forming streamers or eroding tracks on the insulation or insulators, causing subsequent flashover
3. Reducing the transformer BIL level

Corona-free operation is a priority in all Acme Electric transformer designs. Through a combination of air spacing, insulating materials, and semiconducting tape, all of our medium voltage dry-type transformers have corona extinction levels that exceed their operating voltage level.

Coil Construction

Coils are wound with aluminum conductor and insulated with UL

recognized Class 220° C materials such as DuPont Nomex®.

Continuous Wound Coil

The continuous layer wound coil consists of columns of rectangular magnet wire layers separated by axial cooling ducts inserted between various layers. This gives the coil a single column mass and maximum mechanical axial strength. Coils are also kept as round and tight as possible in order to provide maximum strength against radial short circuit forces.

The air ducts provide adequate air space between layers and coils, eliminating the need for flash barriers, which can restrict cooling air flow, increasing hot spot temperatures. During assembly, high voltage windings are positioned over low voltage windings to minimize axial stresses under short-circuit conditions.

All coils are preheated to drive out moisture, and then impregnated with high quality polyester resin to eliminate air-filled voids that can promote corona. This also reduces effective spacing necessary to maintain a high BIL.

Cores

Transformer cores are manufactured with grain oriented cold rolled high purity silicon steel having the highest possible silicon content compatible with magnetic steel production methods. All core steel has been annealed to relieve stresses and to assure flatness and optimum magnetic properties after slitting and processing.

Coil Taps

Coil taps are furnished in the high voltage winding to compensate for variations in the incoming supply voltage to the transformer. All Acme Electric medium voltage transformers are equipped with 2–2½% ANFC (Above Normal Full Capacity) and 2–2½% BNFC (Below Normal Full Capacity) high voltage taps that are easily accessible through removable panels on the front of the transformer.

Further, we are structured to provide custom specifications. If you need a medium voltage dry-type transformer with specifications different from those in our existing line, our engineers can design one for you. For assistance, contact your Acme representative or call 1-800-334-5214 for assistance in developing a solution to your needs.

Features

- Completely encased in a ventilated steel enclosure with no exposed live parts
- Air-cooled by natural convection Smaller, easier to maintain than liquid-filled transformers
- No additional fireproofing or venting needed
- Long life expectancy
- Covered under ACME's 3 year warranty

Applications

- Residential applications
- Hospitals, clinics and other health care operations
- Educational facilities
- Office buildings
- Theaters, stadiums and other entertainment venues

Specifications

1 PHASE, 60Hz, 2.5kV & 5kV CLASS, NEMA 1 ENCLOSED, DOE 2016

kVA	Catalog Number	Height (Inches)(Cm.)	Width (Inches)(Cm.)	Depth (Inches)(Cm.)	Weight (Lbs.)(Kg.)
15	WB015K-XX ①	28.3 (71.8)	20.3 (51.5)	16.3 (41.4)	255 (115.6)
25	WC025K-XX ①	34.8 (88.3)	26.3 (66.8)	22.3 (56.6)	320 (145.1)
37.5	WC037K-XX ①	34.8 (88.3)	26.3 (66.8)	22.3 (56.6)	400 (181.4)
50	WC050K-XX ①	34.8 (88.3)	26.3 (66.8)	22.3 (56.6)	530 (240.4)
75	WC075K-XX ①	34.8 (88.3)	26.3 (66.8)	22.3 (56.6)	690 (312.9)
100	WC100K-XX ①	40.8 (103.6)	32.3 (82.0)	28.3 (71.8)	800 (362.8)
167	WC167K-XX ①	40.8 (103.6)	32.3 (82.0)	28.3 (71.8)	1100 (498.9)
250	WC250K-XX ①	40.8 (103.6)	32.3 (82.0)	28.3 (71.8)	1500 (680.3)
333	WC333K-XX ①	48.0 (121.9)	48.0 (121.9)	32.0 (81.2)	2000 (907.1)
500	WC500K-XX ①	54.0 (137.1)	60.0 (152.4)	40.0 (101.6)	3200 (1451.4)

① Add appropriate voltage number code to catalog number

3 PHASE, 60Hz, 2.5kV & 5kV CLASS, NEMA 1 ENCLOSED, DOE 2016

kVA	Catalog Number	Height (Inches)(Cm.)	Width (Inches)(Cm.)	N-1 Depth (Inches)(Cm.)	Weight (Lbs.)(Kg.)
15	WH015K-YY ①	34.8 (88.3)	26.3 (66.8)	22.3 (56.6)	340 (154.2)
30	WI030K-YY ①	34.8 (88.3)	26.3 (66.8)	22.3 (56.6)	450 (204.1)
45	WI045K-YY ①	34.8 (88.3)	26.3 (66.8)	22.3 (56.6)	500 (226.7)
75	WI075K-YY ①	40.8 (103.6)	32.3 (82.0)	28.3 (71.8)	810 (367.4)
112.5	WI112K-YY ①	40.8 (103.6)	32.3 (82.0)	28.3 (71.8)	950 (430.9)
150	WI150K-YY ①	48.0 (121.9)	48.0 (121.9)	32.0 (81.2)	1260 (571.5)
225	WI225K-YY ①	48.0 (121.9)	48.0 (121.9)	32.0 (81.2)	1630 (739.3)
300	WI300K-YY ①	48.0 (121.9)	48.0 (121.9)	32.0 (81.2)	2180 (988.8)
500	WI500K-YY ①	54.0 (137.1)	60.0 (152.4)	40.0 (101.6)	2940 (907.1)
750	WI750K-YY ①	54.0 (137.1)	60.0 (152.4)	40.0 (101.6)	4400 (1995.8)
1000	WI001M-YY ①	72.0 (182.8)	68.0 (172.7)	48.0 (121.9)	6100 (2766.9)
1500	WI015M-YY ①	84.0 (213.3)	84.0 (213.3)	48.0 (121.9)	8100 (3674.0)
2000	WI002M-YY ①	84.0 (213.3)	84.0 (213.3)	48.0 (121.9)	9500 (4309.1)

① Add appropriate voltage number code to catalog number



1 PHASE VOLTAGE SELECTION

XX	Primary Volts	Secondary Volts
01	2400	120/240
02	2400	240/480
03	2400	600
04	4160	120/240
05	4160	240/480
06	4160	600
07	4800	120/240
08	4800	240/480
09	4800	600

3 PHASE VOLTAGE SELECTION

YY	Primary Volts	Secondary Volts
10	2400Δ	208Y120
11	2400Δ	240Δ
12	2400Δ	480Δ
13	2400Δ	480Y277
14	2400Δ	600Δ
15	2400Δ	600Y347
16	4160Δ	208Y120
17	4160Δ	240Δ
18	4160Δ	480Δ
19	4160Δ	480Y277
20	4160Δ	600Δ
21	4160Δ	600Y347
22	4800Δ	208Y120
23	4800Δ	240Δ
24	4800Δ	480Δ
25	4800Δ	480Y277
26	4800Δ	600Δ
27	4800Δ	600Y347





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