

ACME POWERWISE C3 TRANSFORMERS



**HIGH-EFFICIENCY
DISTRIBUTION TRANSFORMERS**



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

A NEW STANDARD IN TRANSFORMER EFFICIENCY

In January 2007, the Energy Policy Act of 2005 (EPA 2005) set the minimum efficiency level (TP1) for transformers. While this standard sets a minimum performance level, transformers rated at TP1 do not provide the greatest efficiency or offer the lowest life cycle cost.

Acme POWERWISE C3 transformers provide a 30% increase in efficiency performance over standard TP1 transformers. Thanks to a more efficient core and higher-grade electrical steel that minimizes losses, these energy-efficient units even exceed the requirements of the US Department of Energy Candidate Standard Level (CSL) 3 performance standard, commonly referred to as "C3."

	15 kVA	30 kVA	45 kVA	75 kVA	112.5 kVA	150 kVA	225 kVA	300 kVA	500 kVA
CSL-3 Efficiency	97.9%	98.3%	98.4%	98.6%	98.7%	98.8%	99.0%	99.0%	99.1%

Depending on the kVA size, this increase in efficiency can save thousands of dollars in energy costs per transformer. Whether you are looking to upgrade your older pre-TP1 transformers or specify the highest-efficiency transformers on your new project, Acme POWERWISE C3 transformers can deliver the power and performance you need. Review our energy savings calculator at www.acmepowerdist.com/c3 to calculate your energy savings based on your facility.

Typical applications include:

- » Educational Facilities
(K-12/University)
- » Government Buildings
- » Manufacturing Facilities
- » Office and
Commercial Buildings
- » Healthcare/Hospital/
Medical Office Buildings
- » Financial Institutions
- » Data Processing Centers
- » Wastewater and Sewage
Treatment Facilities
- » Correctional Facilities
- » Industrial Facilities



REDUCING ENERGY WASTE WITH ACME POWERWISE C3 TRANSFORMERS

Within a typical facility, increasing the efficiency of your transformers can provide significant savings in a short period of time. Payback usually occurs within 2.5 to 3.5 years, thanks in large part to our no-load losses. Because no-load losses are present even when the transformers are lightly loaded, they are critical to overall efficiency—and POWERWISE losses are up to 40% less than traditional TP1 designs.

	15 kVA	30 kVA	45 kVA	75 kVA	112.5 kVA	150 kVA	225 kVA	300 kVA
No-Load Loss	70W	90W	130W	160W	240W	280W	370W	550W

Evaluating Total Cost of Ownership

Total Cost of Ownership = Initial Cost + Yearly Energy Cost

Cost over the life of the installation should be the most important factor when deciding which technology to use. Since the typical transformer lasts 25 to 30 years, the total life cycle cost far outweighs the initial purchase price of the transformer. The electricity wasted by low initial-cost transformers can amount to millions of wasted kilowatt hours over the operational life of the installation.

Typical Facility Example

The following example demonstrates the energy savings of using Acme POWERWISE C3 transformers instead of standard TP1 transformers. The facility is loaded at 35% during normal working hours and operates at a reduced load of 20% during off-hours. At this level of energy consumption, a small increase in percentage of efficiency amounts to a significant savings over the life of the facility and the life of the transformers.

In this example, the 30-year lifetime savings of Acme POWERWISE C3 transformers is projected to be \$360,020 at current energy rates. In addition to cost savings, there is the added environmental benefit of preventing 2,910 tons of CO₂ emissions from entering the atmosphere.

Transformers	(2) 500 kVA, (10) 112.5 kVA, (16) 75 kVA
Total Facility kVA	3,325 kVA
System Power Factor (PF)	0.80
Available Full Load kW (= kVA x PF)	2,660 kW
Equipment Operation Hrs/Day	10
Equipment Operation Days/Year	250
Load Factor (% during operating hours)	35%
Load Factor (% during non-operating hours)	20%
Calculated Load in kW	698 kW

Reduction in Transformer kW Losses	34.2 kW
kWh Saved Annually	132,331 kWh
Annual Savings (based on \$0.10 per kWh)	\$13,233
Payback on Incremental Cost	2.8 Years

	Initial Cost	30-Year Life Cycle Cost	30-Year Total Cost of Ownership
Traditional TP1 Copper Transformers	\$87,000	\$605,970	\$692,970
Acme C3 Copper Transformers	\$124,000	\$208,950	\$332,950
Total Savings			\$360,020

ACME POWERWISE C3 TRANSFORMER FEATURES

Design

The Acme POWERWISE C3 sets new standards for efficiency and reliability. Through more efficient core material and higher-grade electrical steel, losses are minimized and performance is maximized. Acme POWERWISE C3 transformers are copper wound, 3-phase common-core, dry type ventilated isolation transformers. Each transformer is meticulously constructed to ANSI/IEEE Standards and is UL and CSA listed.



Environmental Efficiency

Acme POWERWISE transformers are the most efficient commercially available transformers. Because they generate lower losses, they reduce power drawn from generating stations, resulting in lower greenhouse gas emissions and less smog. The result is a win for the environment and a win in terms of lowest transformer life cycle costs.

Warranty

Acme POWERWISE C3 transformers are subjected to rigorous quality electrical and insulation tests in our ISO 9001-certified facility, and they are backed by our 25-year pro-rated warranty.

Specifications

Windings	Copper
Insulation Class	220° C
Degree Rise	115° C or 130° C (see below)
Impedance	See datasheets
Noise Levels	Per NEMA ST-20 (-5dB)
Rated for 60 Hertz	
K Rating	K-13
Voltage Taps	Voltage Taps: 15 through 500 kVA (2) 2 ½ % ANFC, (4) 2 ½ % BNFC
Neutral Conductor	200% Rated
Electrostatic Shield	Standard
Enclosure	Ventilated NEMA 2 (NEMA 3R available with drip shield)

Additional Features and Benefits:

- » Exceeds US DOE CSL-3 efficiency to help you reduce electrical waste and provide sustainability in your electrical design
- » Significantly exceeds TP1 efficiency for low operating cost over the life of the transformer
- » Optimized design provides maximum reliability and proven performance
- » Produced in an ISO 9001 facility to ensure high quality and rigorous testing standards

kVA Size	115°C Rise Part Number	130°C Rise Part Number	Dimensions (inches)	Weight (lbs.)
15	TPC3-53311-1S	TPC3-53311-3S	25.5"H x 24.4"W x 19.4"D	290
30	TPC3-53312-1S	TPC3-53312-3S	29.4"H x 28.2"W x 22.4"D	385
45	TPC3-53313-1S	TPC3-53313-3S	29.4"H x 28.2"W x 22.4"D	455
75	TPC3-53314-1S	TPC3-53314-3S	35.5"H x 31.9"W x 26.9"D	585
112.5	TPC3-53315-1S	TPC3-53315-3S	41.5"H x 32.9"W x 29.9"D	1020
150	TPC3-53316-1S	TPC3-53316-3S	41.5"H x 32.9"W x 29.9"D	1260
225	TPC3-53317-1S	TPC3-53317-3S	41.5"H x 32.9"W x 29.9"D	1410
300	TPC3-53318-1S	TPC3-53318-3S	45.6"H x 39.5"W x 35.5"D	1860
500	TPC3-53319-1S	TPC3-53319-3S	57.8"H x 45.0"W x 41.4"D	4015

Contact factory for sizes above 500 kVA



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