

Midwest Electric Products

# Midwest Dry Type Transformers

Reliable and Efficient Performance—  
From a Name You Know



**Our transformers are setting new standards for quality – in design, manufacturing and testing. Before leaving the factory, every Midwest transformer must pass a series of rigorous tests, performed with advanced equipment, on a range of specific requirements.**



# Midwest Electric's Dry Type Transformers



## We test for:

- **Coil insulation integrity** to ensure high initial quality and years of trouble-free operation
- **Current and loss** to ensure peak efficiency, low noise and the lowest operating cost possible
- **Voltage ratio** to ensure that input and output voltage parameters are exactly as specified
- **Impedance** to ensure the transformer is producing power that's friendly to your building and equipment

*That's why you can be sure you'll get the highest initial quality and years of trouble-free operation.*

## All Midwest transformers feature:

- NEMA TP-1 2002 compliance
- Clear, comprehensive documentation and labeling
- Single-piece front/back for easier service
- Accessible mounting flanges with front/back slotted-mounting holes to speed installation
- Seismic qualifications to the requirements of ASCE 7.05, IEEE-693-2005 and IBC-2006
- 200% neutral - standard
- Copper ground strap - standard
- Taps: 300kVA and smaller have two 2.5% above nominal and four 2.5% below nominal; 500kVA and larger have two 2.5% above nominal and two 2.5% below nominal
- Robust packaging with top and edge protection
- 220°C insulation system
- 40°C ambient
- 10kV-BIL
- Copper or aluminum windings
- UL Listed
- Standard NEMA 2 drip-proof enclosure with optional weathershield kit for conversion to NEMA 3R outdoor
- NEMA 3R stainless steel (Type 316) enclosure is available up to 150kVA
- A one-year limited warranty

## NEW Midwest Ultra Efficient Up to 99% efficient

More energy efficient than the TP-1 design, the Midwest Ultra Efficient transformer can save customers nearly \$4,000 per year in operating costs, based on a facility the size of an elementary school\*, and help them earn U. S. Green Building Council's LEED® certification points on a project. It's significantly quieter than standard transformers and features all of the convenience and reliability you expect from a Midwest transformer. It's perfect for schools and colleges and for government, healthcare and commercial buildings.

\*Based on upgrading pre-2007 (non-TP-1) transformers at an elementary school with 13 transformers, ranging in size from 30kVA to 112.5 kVA and energy costs of \$.077/kwh to the equivalent Midwest Ultra efficient transformers.

## Features and benefits

- Efficiency up to 99% reduces operating cost by 30%
- Exceeds NEMA TP-1, meets NEMA Premium and DOE CSL-3 efficiency
- Low core loss with maximum efficiency under low-load conditions
- Aids in qualifying for more LEED points for sustainable building appeal
- Ultra quiet operation
- K1, K4 and K13 models available.
- K-Factor models available in 150°C, 115°C, and 80°C rise
- Ultra efficient harmonic mitigating transformers available in 0° phase shift and -30° phase shift



## General Purpose Transformers

### Reliable, efficient quiet design from a trusted brand

Midwest general purpose transformers are the brand contractors trust for trouble-free installation and years of reliable service.

#### Features and benefits

- Reliable design and quiet performance
- 3-phase from 15-1000kVA
- 1-Phase from 15-250kVA

## K Factor Transformers

### How to handle non-linear loads

K-Factor transformers are more robust than standard transformers, so they are better able to withstand the additional heating that accompanies the presence of harmonics in electrical systems. K-factor transformers are designed not to eliminate harmonics, but to withstand their negative effects.

#### Features and benefits

- UL K-Factor Listed. UL 1561 listed
- Full-width copper electrostatic shielding standard
- Effective coupling capacitance 30 PF between primary and secondary

## Guard I, II, III Noise Isolation Transformers

Installations with sensitive electronic equipment – computer rooms, x-ray rooms, electrical laboratories, etc. – need the extra protection offered by Midwest's Guard I, II and III transformers.

### Guard I

- Grounded electrostatic shield between primary and secondary windings
- 120dB common-mode noise reduction
- 30dB transverse-mode noise reduction

### Guard II

- Noise suppressors and spike/surge suppressors
- Transient overvoltage protection
- Grounded electrostatic shield between primary and secondary windings
- 120dB common-mode noise reduction
- 60dB transverse-mode noise reduction



### Guard III Harmonic Mitigating

- Special coil design helps eliminate harmonics. Available in 0° and -30° phase shift.
- Eliminates transformer overheating and high operating temperatures

- Maintains energy efficiency even when harmonics are present in the electrical system
- Helps eliminate power quality problems that K-factor transformers do not

## Totally Enclosed Non-Ventilated (TENV) Transformers

Totally Enclosed Non-Ventilated (TENV) transformers are an excellent choice for applications where standard dry-type transformer enclosure openings are not acceptable because dust, dirt or lint may be present or because transformers are subject to sprays or controlled wash-down conditions.

#### Features and benefits

- Convenient wiring compartment beneath the transformer has removable front and rear covers
- Clearly labeled copper bus bars are located at the front of the wiring compartment
- All electrical connections between the transformer and bus bars are factory wired



## Drive Isolation Transformers (DIT) Built for SCR stresses

Midwest Drive Isolation Transformers (DIT) are designed specifically to handle the use of SCR control circuitry of adjustable-speed drives. Symmetrically placed taps and added coil bracing are able to withstand the mechanical forces involved. They also reduce line pollution feedback resulting from SCR firing circuits.

#### Features and benefits

- Voltages up to 600V
- Conforms to ANSI, NEMA, UL and IEEE standards
- 11kVA - 440kVA



## Low Noise Transformers The quiet performers

These low noise transformers operate at reduced noise levels. The vibrations within the magnetic steel core have been greatly reduced, thus reducing transformer hum. Midwest Low-Noise transformers operate at 3dB or 5dB less than NEMA/ANSI standards.

#### Features and benefits

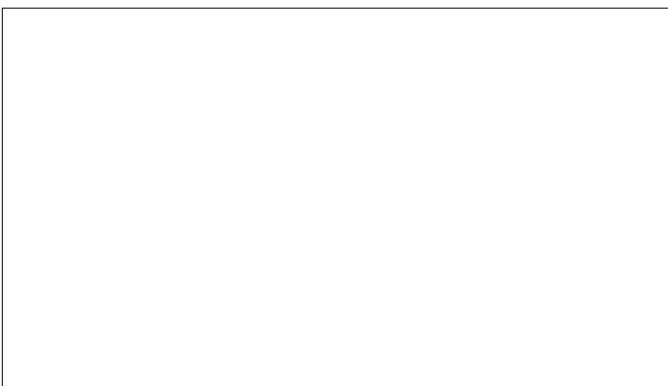
- Great for noise-sensitive areas
- Operation at -3dB or -5dB below NEMA standards
- 150°C, 115°C or 80°C rise

# Midwest Transformer Selection Guide



Application	General Purpose	Ultra Efficient	K Factor (K=4)	K Factor (K=13)	K Factor (K=20)	K Factor (K=30)	Low Noise	Drive Isolation
AC or DC variable speed drives								●
Computer installations					●	●		
Critical care facilities					●	●	●	
Data processing equipment circuits					●	●		
HID lighting			●					
Hospital operating rooms					●	●		
Incandescent lighting	●		●					
Induction heaters			●					
Instrumentation					●	●		
LEED projects		●						
Maximum energy efficiency		●						
Motor generators (without solid state drives)	●		●					
Motors	●		●					
Multiple receptacle circuits in health care facilities				●				
Office buildings		●		●			●	
PLC & solid state controls			●					
Production or assembly line equipment				●				
Programmable controllers					●			
Rectifier outputs								●
Resistance heating	●		●					
Schools & classroom facilities		●		●			●	
SCR variable speed drives					●			
UPS with optional input filtering			●					
UPS without optional input filtering				●				
Welders			●					
X-ray equipment					●			

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