

# K-STAR

- *Energy efficient harmonic cancellation transformer*
- *Treats 3rd, 9th and other zero sequence currents*
- *NEMA TP-1, Energy Star® compliant*
- *High Performance option - 20% less losses than Energy Star (TP-1)*
- *Independent performance tests at Oak Ridge National Lab*
- *Factory ISO 9001 Nonlinear Load Test Program*
- *Optional SMART1 Integrated Metering Port (Revenue Class Accuracy)*
- *Available 25 year warranty with built-in surge suppression*



## Description

The standard K-STAR configuration is the accepted replacement for the delta-wye transformer to feed modern office equipment. Several design improvements make the K-STAR unique, including the treatment of the 3rd harmonic in the secondary winding, and 98% efficiency under nonlinear loads. These render standard delta-wye and k-rated transformers obsolete.

The factory-installed options such as noise filtering and Transient Voltage Surge Suppression (TVSS) option provides additional protection for sensitive equipment while eliminating associated field installation costs if providing this separately.

## Environmental Benefits

The Powersmiths K-STAR is built to ISO 14001, the international standard for minimizing environmental impact during the manufacturing process. Powersmiths transformers have lower losses, which means less power drawn from a generating station - less smog, less greenhouse gas emissions, and less mining of our natural habitat.

## Production Nonlinear Load Test

When savings are on the table, performance needs to be proven. Powersmiths is the only manufacturer to production test transformers under ISO 9001 with actual computer power supply loading, and with revenue class accuracy. Data can be provided for individual units by selecting the 'NLT' option. Furthermore, using our SMART1 metering port and CYBERHAWK Efficiency & Power Meter enables the on-site performance commissioning.



## Special Environment Option

More than ever, transformers are being located closer to people. This means that in some installations meeting industry standard noise levels is not enough. Furthermore, only type testing is required, so noisy production units can be shipped to the job site. To meet these challenges, Powersmiths embeds internal structural and acoustic treatments that combine to drop noise significantly below industry standards, and we verify this by incorporating noise tests into our ISO 9001 standard production process.

## On-Site Commissioning of Transformer Performance

The SMART1 integrated metering port option provides safe and revenue class accurate external access to live transformer primary and secondary voltages and currents, operating temperature, and TVSS status without opening the transformer enclosure. Powersmiths is the first transformer manufacturer to enable easy and accurate commissioning of the installed performance of a transformer for energy and power quality on a continuous basis. SMART1 is a key tool for achieving prerequisites and credits of LEED and other energy programs, as well as qualification for rebates and/or funding. The Powersmiths Cyberhawk Efficiency and Power Meter plugs directly into the SMART1, so comprehensive commissioning of performance takes only minutes.

## 25 Year Warranty Option

The 25-year Warranty option is more than just an extension of our industry-leading warranty. This option comes with built-in surge suppression to help protect connected equipment from unwanted spikes.

# K-STAR

## Technical Data

kVA	Impedance (+/-SEQ.)	Weight (lbs)	Case Size (Inches)
15	3.5-5.0%	220-260	A (18W x 17D x 27H)
30	3.5-4.5%	400-500	B (26W x 18D x 30H)
45	3.0-4.0%	560-680	B (26W x 18D x 30H)
75	3.0-4.0%	750-860	C (32W x 22D x 40H)
112.5	3.0-4.0%	1050-1250	C (32W x 22D x 40H)
150	3.0-3.5%	1250-1450	D (38W x 27D x 48H)
225	3.5-4.5%	1850-2150	D (38W x 27D x 48H)
300	3.5-4.5%	2150-2450	D+ (38W x 32D x 52H)
500	3.0-4.0%	3100-3450	E+ (52W x 38D x 61H)
750	3.8-5.0%	4000-4800	F (64W x 47D x 67H)

THE ABOVE DATA APPLIES TO CONFIGURATIONS UP TO 600V, WITH NEMA 1 ENCLOSURE AND STANDARD TEMPERATURE RISE. SELECTION OF SOME OPTIONS MAY CHANGE ENCLOSURE SIZE AND WEIGHT. CONSULT FACTORY FOR DETAILED PRODUCT DATA SHEET FOR THESE AND OTHER CONFIGURATIONS. \* SPECIFIC CASE USED DETERMINED BY FACTORY UNLESS SPECIFIED. UP TO 5000kVA, 15kV CLASS AVAILABLE.

### Standard Configuration

The K-STAR is a 3-phase common-core copper-wound dry-type transformer, built in an ISO 9001 and ISO 14001 environment to NEMA ST-20 and other applicable ANSI and IEEE standards. Secondary windings have less than 0.95% zero sequence impedance, less than 0.3% zero sequence reactance, and reduce fundamental current imbalance. It has a 220°C class insulation system and standard models come with a 150°C operating temperature rise, and a 60Hz rating, at which the K-STAR meets the efficiency requirement of NEMA TP-1 and the EPA Energy Star program. Many options are available.

**kVA:** Rating of unit, (15-1000 kVA, up to 5000 kVA available)

**PV:** Primary voltage, (600, 480, 415, 400, 380, 208, up to 15kV available)

**SV:** Secondary voltage, (208/120V, 480/277V, 600/347V, other available)

**N1:** NEMA 1, ventilated drip proof enclosure

**T150:** 150 deg. C operating Temp. rise

**F60:** 60Hz design

**TP1:** NEMA TP1 compliant\*

### Available Options

**N3R:** NEMA 3R, ventilated enclosure

**NVE:** Non-ventilated enclosure

**T130:** 130 deg. C operating Temp. rise

**T115:** 115 deg. C operating Temp. rise

**T80:** 80 deg. C operating Temp. rise

**F50:** 50Hz design

**ECO:** ECOLOGO certified

**1S:** Single electrostatic shield

**2S:** Dual electrostatic shields

**PRO702:** 208V TVSS, 70kA/mode internal

**PRO902:** 208V TVSS, 90kA/mode internal

**PRO904:** 480V TVSS, 90kA/mode internal

**PRO1502:** 208V TVSS, 150kA/mode internal

**PRO1504:** 480V TVSS, 150kA/mode internal

**TVSSxx:** Where xx is custom ID

**LK:** Lug kit, screw-type

**COL:** Color other than factory standard

**TSB:** Terminal Safety Barrier

**TS:** Thermal Sensors at 170°C and 200°C

**NLT:** Nonlinear load test

**W25:** 25 year warranty with built-in surge suppression

**SE:** Sensitive Environment, extra low noise

**HP:** High Performance - 20% less losses than Energy Star (TP-1)



#### Warranty

5 years pro-rated

K-Star is a trademark of Powersmiths International Corp.;

\*As an Energy Star® partner Powersmiths has determined that the 150°C rise, K-Star configuration meets the requirements of the EPA ENERGY STAR guidelines for energy efficiency.

Technical specification subject to change without notice.

## POWERSMITHS™

**U.S.A. - Sales / Support**  
 8400 Esters Blvd., Suite 140  
 Irving, Texas 75063  
 U.S.A.  
 T: 972.929.0770  
 F: 972.929.0977  
 Help: 866.929.0770

**Canada**  
 10 Devon Road  
 Brampton, Ontario L6T 5B5  
 Canada  
 T: 905.791.1493  
 F: 905.791.8870  
 Help: 800.747.9627

Email: info@powersmiths.com • www.powersmiths.com