

## POWERCUBE™ TRANSFORMERS ENERGY EFFICIENCY & COST SAVINGS DELIVERED



**THE INDUSTRY'S TRUSTED CHOICE** As the pioneer of critical power distribution technology, PDI leads the way with proven solutions when it comes to high efficiency transformers. Backed by three modern US manufacturing facilities, a staff of over 300 dedicated people, and 30 years of industry experience, PDI has one of the largest installed bases of high efficiency transformers among any power quality provider.

### LOWER OPERATING COSTS

PDI's advanced technology high efficiency transformers are designed to deliver optimal high efficiency for lower operating costs. Exceeding national efficiency standards (NEMA TP-1), PowerCube™ transformers deliver true energy savings under both linear and non-linear loads.

**SYSTEM MONITORING** The award winning Wavestar™ monitoring system with PDI® provides real time energy and power quality information at a glance. All monitors are equipped with universal communications ports for easy interface with building management systems.

**MAINTAINABILITY** An available hinged front port provides a quick and easy way to access all power connections, while optional infrared transparent windows allow for safe routine thermal scanning without opening the interior doors.

**REDUCING THE FOOTPRINT** PDI's high efficiency transformers are designed to provide years of reduced energy costs, reduced energy consumption, and therefore reduced impact on the environment. Additionally, our eco-friendly design and manufacturing process strives to maximize recycling methods for sustainability.

### TESTED AND VERIFIED TO NATIONAL STANDARDS

To verify performance of actual efficiency, all PDI energy efficient transformers are tested to a nationally recognized method using third party verified equipment. All transformers are provided with a serialized test data sheet to validate performance to ensure customers get the efficiency they pay for.

**BETTER BY DESIGN** We invite you to look further at the technology and advantages of PDI PowerCube™ transformers. A 240°C thermal shielding between windings delivers an extra margin of safety and design and extends operating life. Welded tap connections and large flat bus termination points also eliminate "hot spots" found in most other manufacturer's transformers.

**APPLICATIONS** The PowerCube™ represents an optimal solution for: data centers, K-12, colleges, universities, government, healthcare, industrial, and commercial buildings where lower operating costs, energy savings, and the environment are a priority.

### FEATURES

- Lower operating costs
- Lower heat generation / less cooling capacity required
- Reduced greenhouse emissions
- Meets TP-1 efficiency standards
- Qualifies for LEED building criteria
- Optional revenue-accurate metering connection port
- Integral electrical performance & commissioning capability via PDI's nationwide service team
- Customizable load level efficiency maximization
- Customer-specific power quality characteristics available
- Independently verified efficiency testing & verification
- Real time efficiency status monitoring capability
- Long term warranty available

# HIGH EFFICIENCY POWER QUALITY TRANSFORMER: POWERCUBE™

## SPECIFICATIONS

### RATINGS

- kVA Ratings: 30-1000 kVA
- K Factor: specifiable K1 through K30
- 6 Compensation Taps (4 FCBN, 2 FCAN)
- Input: 3-phase, 3 wire plus ground
- Input Voltage @ 50 Hz: 415 or 380V  
@ 60 Hz: 600, 480 or 208V
- Output: 3-phase, 4 wire plus ground
- Output Voltage @ 50 Hz: 415/240 or 380/220V  
@ 60 Hz: 600, 480 or 208/120V
- Impedance: 2.0-4.5% average ± 0.25%

### FEATURES

- Copper wound construction – better conducting and more resilient than aluminum
- Dual electrostatic shield – attenuates high frequency noise
- Natural convection cooling
- Operating Efficiency: 98% typical
- Oversized neutral for non-linear loads
- UL Listed

### ENCLOSURE

- Drip-proof NEMA 1
- Removable front and rear panels

### OPERATING CONDITIONS

- Operating Temperature: ambient 0°C to 40°C
- Storage Temperature: ambient -10°C to +40°C
- 50 Hz Operating Range: 47-53 Hz
- 60 Hz Operating Range: 57-63 Hz
- Relative Operating Humidity: 90% non-condensing

### WARRANTY

- 12 years prorated - the industry's best

### TRANSFORMER DESIGNS

- Delta Wye
- Delta Zig Zag
- Dual Zig Zag
- Quad-Wye
- Medium Voltage
- Autotransformers

**PDI** = POWER DISTRIBUTION INTELLIGENCE QUOTIENT  
YOUR SMART MONITORING SOLUTION

## POWERCUBE™ OPTIONS

### TRANSIENT SUPPRESSION NETWORK (TSN)

This feature provides an integrated system designed and engineered to meet ANSI/IEEE category C standards for transient voltages and surge currents.

### LIGHTNING ARRESTOR/SURGE SUPPRESSOR

The Lightning Arrestor and Surge Suppressor option protects the major insulation of the magnetics from high energy surges that are associated with lightning discharges. The suppressor circuit reduces the rate of rise of high energy transient voltages, thereby increasing the effectiveness of the Lightning Arrestor.

### OPTIONAL TRANSFORMER FEATURES

- Temperature rise at 130°C, 115°C, 105°C and 80°C rise
- Temperature monitor
- Zero and thirty degree phase shift transformer available
- Thermal warning and shutdown sensors
- Harmonic mitigation
- WaveStar™ graphics display
- PowerLogic monitor
- NEMA 3 enclosure
- IR scan port
- Custom impedances are available upon request.
- 25 year prorated warranty
- Customized spare parts kits available

*PDI offers over 800 different PowerCube™ configurations.  
Couple these with PDI's TVSS option to ensure system reliability.*

KVA	WEIGHT (LBS)	NEMA 1 H x W x D (INCHES)
30	380	36 x 28 x 17
45	490	36 x 28 x 17
75	700	42 x 35 x 21
100	750	42 x 35 x 21
125	830	50 x 40 x 28
150	980	50 x 40 x 28
225	1200	63 x 49 x 30
300	1600	63 x 49 x 30
500	2400	63 x 49 x 30
750	3600	72 x 66 x 44
1000	3600	72 x 66 x 44

Consult specific design for impedance value.

# PDI

creating the perfect wave

Power Distribution, Inc. | 4200 Oakleys Court | Richmond, VA 23223  
800.225.4838 | 804.737.1703 fax | web site: www.pdicorp.com

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# POWERCUBE HIGH EFFICIENCY TRANSFORMER PRODUCT DATA SHEET

## Standard Features

- TP1 complaint
- 60 Hz
- Welded bus
- 4 - 8 times in-rush
- Thermal sensor
- 2 - 4.5% impedance
- Primary Voltage: 480
- Secondary Voltage: 120/208
- 50 Hz (optional)
- 12-year warranty (25-year optional)
- NEMA 1 drip proof vented indoor enclosure.
- Front accessible for all connections and taps
- 1 MVA - 3 MVA transformers available. (Consult the factory for pricing.)

Product Family	He-1000	He-2000	He-3000	He-4000	He-5000	He-6000
<b>Transformer Overview</b>	k4, 240°C class insulation, 115°C rise	k7, 240°C class insulation, 130°C rise	k13, 240°C class insulation, 105°C rise	Delta Zig Zag	Quad-Wye	Delta-Wye
<b>kVA</b>	<b>Catalog #</b>	<b>Catalog #</b>	<b>Catalog #</b>	<b>Catalog #</b>	<b>Catalog #</b>	<b>Catalog #</b>
30	He-1030	He-2030	He-3030	He-4030	He-5030	He-6030
50	He-1050	He-2050	He-3050	He-4045	He-5045	He-6045
75	He-1075	He-2075	He-3075	He-4075	He-5075	He-6075
100	He-10100	He-20100	He-30100	He-40100	He-50100	He-60100
112.5	He-10112	He-20112	He-30112	He-40112	He-50112	He-60112
125	He-10125	He-20125	He-30125	He-40125	He-50125	He-60125
150	He-10150	He-20150	He-30150	He-40150	He-50150	He-60150
200	He-10200	He-20200	He-30200	He-40200	He-50200	He-60200
225	He-10225	He-20225	He-30225	He-40225	He-50225	He-60225
300	He-10300	He-20300	He-30300	He-40300	He-50300	He-60300
400	He-10400	He-20400	He-30400	He-40400	He-50400	He-60400
500	He-10500	He-20500	He-30500	He-40500	He-50500	He-60500
625	He-10625	He-20625	He-30625	He-40625	He-50625	He-60625
750	He-10750	He-20750	He-30750	He-40750	He-50750	He-60750

Similar to the delta wye transformer except the "zig-zag" output serves to lower voltage distortion caused by single phase loads. This vector can be designed with a 0° phase shift between the input and output.

Reduces current and voltage distortion, and cancels harmonic currents. Two outputs balance the load in order to reduce harmonics produced by high neutral currents. This solution is ideal for reducing voltage distortion caused from single phase loads (L-N) and (L-L) loads.

Most common type of isolation transformer; "DY1" signifies phase rotation for the North American market or most 60 Hz markets. Transformers will traditionally have a 30° phase shift from input to output.



# POWERCUBE HIGH EFFICIENCY TRANSFORMER PRODUCT DATA SHEET

## Options

Catalog #	Description
WS	Wavestar Monitor
PL	PowerLogic PM810
AL	Aluminum Windings
LK	Lug Kit
TV	60 kA TVSS
LS	Non-linear Load Test
SS	Surge Suppression
IR	IR Scan Port
SC	Special Color
TE	Triple Electrostatic Shields
TSB	Terminal Safety Barrier
25	25-year Warranty
HD1	Hinged Door <150 kVA
HD2	Hinged Door 200-300 kVA
HD3	Hinged Door 400-750 kVA

## Primary Voltages

Catalog #	Voltage
PV208	208
PV380	380
PV400	400
PV415	415
PV480	480
PV600	600

## Secondary Voltages

Catalog #	Voltage
SV208	208
SV240	240
SV277	277
SV380	380
SV400	400
SV480	480

## PowerCube Model Number Example

PRODUCT	PRIMARY VOLTAGES	SECONDARY VOLTAGES	FREQUENCY	OPTION(S)
He-1030	480	208	60	WS

He-1030	208	208	50	WS
He-1050	380	240	60	TM
He-1075	400	380		PL
He-10100	415	400		AL
He-10112	480	480		LK
He-10125	600			TV
He-10150				LS
He-10200				SS
He-10225				IR
He-10300				SC
He-10400				TE
He-10500				TSB
He-10625				25
He-10750				HD1
				HD2
				HD3

## Why use PDI High Efficiency Transformers?

- Energy cost savings.
- Longer operating life.
- 100% proudly made in the USA.
- Improved energy efficiency over standard distribution transformers.
- No "proprietary" payback calculations; third party certified testing organizations utilized.
- Higher quality in manufacturing and material results in higher reliability and lower cost of ownership.



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# PDI HIGH EFFICIENCY POWER QUALITY TRANSFORMER

## WEIGHTS, DIMENSIONS AND ELECTRICAL SPECIFICATIONS


### DIMENSIONS AND WEIGHTS

KVA	A	B	C	D	E	F	G	H	J	H(MTG SLOT)	WT/LB
<input type="checkbox"/> 30	36.00	28.00	17.00	25.14	14.00	22.50	15.50	15.50	6.75	.625 X 1	380
<input type="checkbox"/> 45	36.00	28.00	17.00	25.14	14.00	22.50	15.50	15.50	6.75	.625 X 1	490
<input type="checkbox"/> 75	42.00	35.00	21.00	32.14	18.00	29.50	19.00	19.00	10.75	.625 X 1	700
<input type="checkbox"/> 100	42.00	35.00	21.00	32.14	18.00	29.50	19.00	19.00	10.75	.625 X 1	750
<input type="checkbox"/> 125	50.00	40.00	28.00	37.04	25.00	34.50	26.00	26.00	12.75	.625 X 1	830
<input type="checkbox"/> 150	50.00	40.00	28.00	37.04	25.00	34.50	26.00	26.00	12.75	.625 X 1	980
<input type="checkbox"/> 225	63.00	49.00	30.00	45.52	24.59	42.00	28.00	28.00	14.75	.625 X 1	1200
<input type="checkbox"/> 300	63.00	49.00	30.00	45.52	24.59	42.00	28.00	28.00	14.75	.625 X 1	1600
<input type="checkbox"/> 500	63.00	49.00	30.00	45.52	24.59	42.00	28.00	28.00	14.75	.625 X 1	2400
<input type="checkbox"/> 750	72.00	66.00	44.00	45.52	24.59	42.00	28.00	28.00	14.75	.625 X 1	3600

(REFER TO MECHANICAL SPECIFICATION DRAWING)

KVA	INPUT CURRENT (AMPS)			OUTPUT CURRENT (AMPS)			HEAT REJECTION (BTUH @ FULL LOAD)
	600 VAC	480 VAC	208 VAC	600 VAC	480 VAC	208 VAC	
30	29	36	83	29	36	83	1.6
45	43	54	125	120	54	125	2.5
75	72	90	208	201	90	208	4.1
100	96	120	278	268	120	278	5.5
125	120	151	347	335	151	347	6.8
150	145	181	417	402	181	417	8.2
225	217	271	625	602	271	625	12.3
300	289	361	834	803	361	834	16.4
500	482	602	1390	1339	602	1390	27.3
750	723	903	2084	2008	903	2084	41.0

NOTE: OBSERVE ALL NEC AND LOCAL GUIDELINES WHEN SELECTING OVERCURRENT PROTECTION AND CABLING

 <small>creating the perfect wave</small>	POWER DISTRIBUTION, INC. 4200 OAKLEYS COURT, RICHMOND, VA 23223
HIGH EFFICIENCY POWER QUALITY TRANSFORMER	
DWG NO. 92-10001-00_2-X0	REV X0
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# PDI HIGH EFFICIENCY POWER QUALITY TRANSFORMER

## GENERAL NAMEPLATE DRAWING

### DRY TYPE POWER TRANSFORMER <sup>(1)</sup>

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KVA 3 PH  Hz

CLASS AA  150 °C RISE

HV  DELTA V  A

LV  V  A

LV2  V  A<sup>(4)</sup>

RATED K FACTOR

TYPE  KHES2

INS. SYSTEM  240 °C

% IMP @ 170°C<sup>(2)</sup>

WEIGHT  LB APPROX.

PDI P/N:

DATE CODE

SERIAL NO.

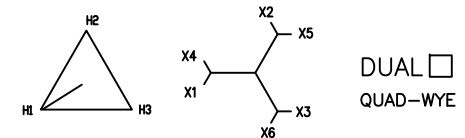
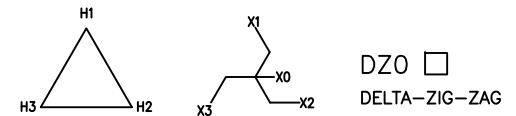
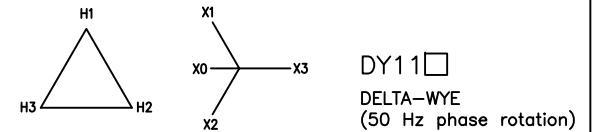
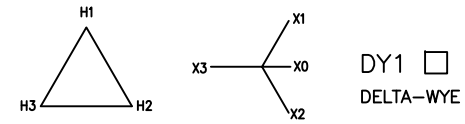
TEMP. SENSOR  N/D  120 V  5 A

YEAR OF MANUFACTURE

### VOLTAGE TAPS<sup>(5)</sup>

HV CONNECTION (H1-H2-H3)	
%RATED VOLTAGE	CONNECTIONS
105	3T04
102.5	2T04
100	3T05
97.50	2T05
95	2T06

### VECTOR TYPE<sup>(3)</sup> (note selected vector)



**MADE IN USA**



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HIGH EFFICIENCY  
POWER QUALITY TRANSFORMER

DWG NO. 92-10001-00\_3-X0 REV X0

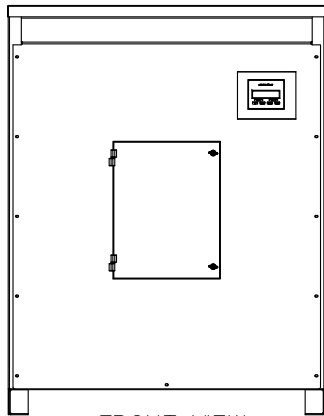
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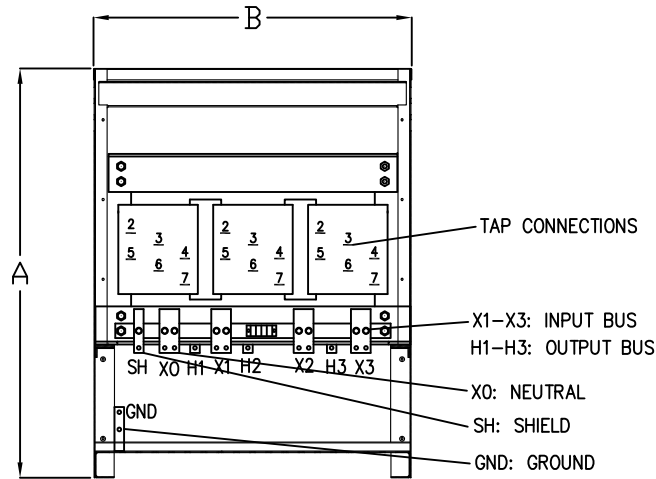
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# PDI HIGH EFFICIENCY POWER QUALITY TRANSFORMER

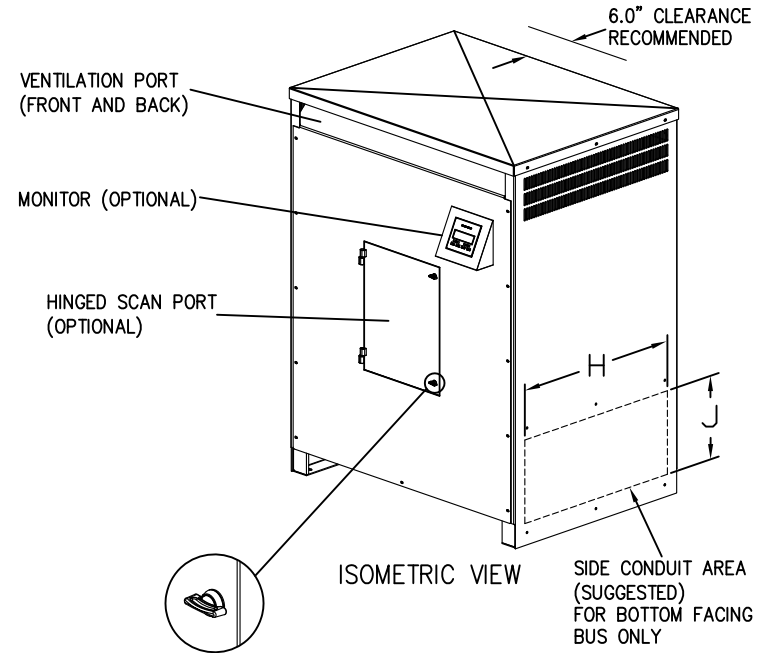
## MECHANICAL SPECIFICATIONS



FRONT VIEW



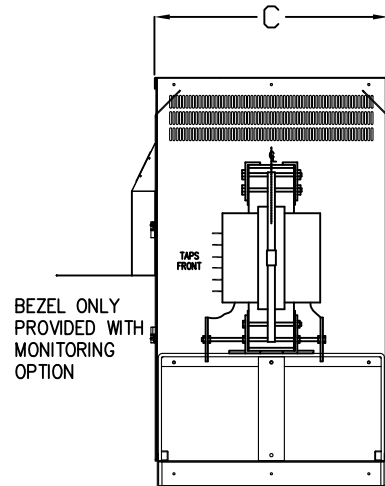
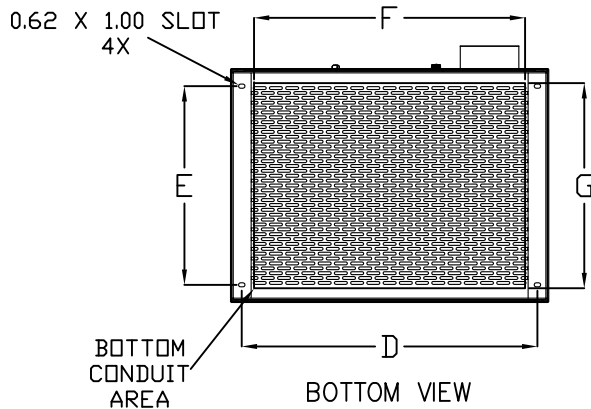
FRONT VIEW  
BOTTOM FACING BUS  
(FRONT PANEL REMOVED)



GND: GROUND  
CAPTIVE HARDWARE

NOTES:

1. BUS BARS CAN BE CONFIGURED FOR TOP OR BOTTOM FACING CONFIGURATION. SPECIFY AT TIME OF ORDER.
2. REFER TO SPECIFIC TRANSFORMER CONSTRUCTION DRAWING FOR BUS DETAIL AND HOLE DIAMETERS.
3. CERTAIN MONITORING AND TVSS OPTIONS MAY OCCUPY A PORTION OF BOTTOM CONDUIT AREA. CONSULT JOB SPECIFIC DRAWINGS WHEN ORDERING TVSS AND/OR MONITORING OPTIONS.
4. DOOR SWING RADIUS IS 1/3 THE WIDTH OF THE ENCLOSURE.
5. DRAWING IS SPECIFIC TO NEMA 1 ENCLOSURE. CONSULT NEMA 3R ENCLOSURE DRAWING FOR OUTDOOR APPLICATIONS.
6. HINGED SCAN PORT, IR TRANSPARENT SCAN WINDOW, MONITOR AND TVSS ARE ALL OPTIONAL ACCESSORIES NOT PROVIDED UNLESS SPECIFIED.
7. STANDARD PAINT COLOR IS PDI BLUE.



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