

# E-Saver-33L

# Ultra Efficient Application Optimized Dry Type Transformer

*Optimized for Application Load (OPAL) yields substantially lower losses than typical DOE compliant units*

<b>Electrical Ratings</b>	<b>Power [kVA]</b>	<b>112.5</b>						
	Continous Overload [kVA]	124 <span style="float: right;"><i>Max. Linear Load; 1 THD &lt; 0.05 p.u. &lt; 30°C Amb.</i></span>						
	<b>Primary [V]</b>	<b>480</b>						
	<b>Secondaries [V]</b>	<b>120/208</b>						
<b>Topology &amp; Materials</b>	Frequency [Hz]/Phase/Shift	60 / 3-Phase <span style="float: right;">-30 deg.</span>						
	Primary Taps	2 x 2 1/2 % FCAN; 4 x 2 1/2 % FCBN; (6 Taps)						
	K-Rating (IEEE C57.110) [K]	K7 @ 100%; >K13 @ 80%; <i>Refer Powersmiths published tables for other ratings</i>						
	Electrical Topology	Primary: Delta 3 -Wire			Secondary: Wye 4 -Wire			
<b>Regulatory Efficiency</b>	Terminals: Material / Rating	Neutral: Copper/200%		Line: Copper/100%		Ground: Mechanical Lug		
	Coils / Construction	Copper; Welded/Brazed Internal Connections						
	Core / Configuration	3 Leg, Low loss super grain-oriented electrical steel						
	Insulation Class / Type	220 (UL Listed, E221932)			Nomex based			
<b>Load Performance</b>	Impregnant / Properties	Epoxy/Polyester co-polymer; Dielectric 3.2kV/mil. x 3 mil. build; Low VOCs						
	B.I.L.	10kV (Primary & Secondary)						
	<b>35% Load @ 75 °C [%]</b>	≥ <b>98.91</b> ; <i>tested per DOE 10CFR431*, Subpart K, &amp; CSA C802.2</i>						
<b>General Operation</b>	Reference levels:	(112.5kVA): DOE 2016: 98.74%; CSA C802.2-12: 98.20%						
	<i>*Powersmiths exceeds DOE test requirements by guaranteeing performance of every unit</i>							
	Percent Loading:	<b>No Load</b>	<b>16.7%</b>	<b>25.0%</b>	<b>35.0%</b>	<b>50.0%</b>	<b>75.0%</b>	<b>100.0%</b>
	Linear Load Efficiency <sup>+</sup> [%]		98.89	99.01	98.97	98.79	98.31	97.62
	Linear Load Loss <sup>+</sup> [W]	<b>154</b>	211	283	409	687	1445	2722
<b>Impedance</b>	[BTU/hr]	525	720	966	1396	2344	4930	9287
	K7 Load (IEEE C57.110) <sup>+</sup> [%]		98.8	98.9	98.9	98.6	98.0	97.1
	<sup>+</sup> Calculated @ 20°C Amb. Accuracy: Linear Loss ± 3% measurement tolerance per DOE 10CFR431; Efficiencies ± 0.05%							
	Temperature Rise/Ambient [°C]	< <b>130</b> (Full Linear Load)			40 (Per ANSI C57.96.2013)			
<b>Abnormal</b>	Regulation (full load) [%]	2.3 (Cos Φ=1.0)			4.6 (Cos Φ =0.8)			
	Excitation [A]	0.8 (~ Effective Current)						
	Audible Noise [dBA]	47 (3 dBA less than NEMA ST-20 requirement 51-150kVA)						
<b>Physical</b>	Z: +/- Sequence [%]	Z: 4.9	X: 4.4	R: 2.2	(per ANSI C57.12.91/UL1561)			
	N/A	Zo:	Xo:	Ro:	(per ANSI C57.12.91)			
<b>Enclosure Type &amp; Installation</b>	Type / Environment	2: Indoor Ventilated; 3R: Sprinkler/Weather Shields (Field Installed Option)						
	Installation / Location	Non-combustible floor; Restricted Access Area, non-public accessible						
	Ventilation Clearances	2" to rear wall; zero clearance for sides (Grill opening < 1/2", Vermin Resistant)						
<b>Quality, Standards &amp; Certification</b>	Paint / Finish	Polyester Powder Coat, Semi-Gloss, Textured; Color: Green (RAL 6018)						
	Size & Drawing	TC0: (W: 32" D: 22" H: 40"); Drawing: 300-003761-800						
	Net Weight	1040 lbs / 473 kg						
<b>Additional Specified Attributes &amp; Options:</b> <i>(As listed)</i>	Quality	ISO 9001-2000: Quality Management System ISO 14001-2004: Environmental Management System ISO 17025: Efficiency Measurement Certification (CSA)						
	Design / Build / Test	UL 1561; CSA C22.2-47; NEMA ST-20; ANSI C57.91						
	Certifications	<b>UL/CUL Listed; CSA Certified</b>			<i>UL1561 Listed for Non-linear loads</i>			



**POWERSMITHS INTERNATIONAL CORP.**

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**OPAL Series Model: E-Saver-33L-112.5-480-208**

Prepared: D. Faria

Date: 27-Nov-15

Part No: **222-004397 -100**

Revised:

Date: 21-Jan-16

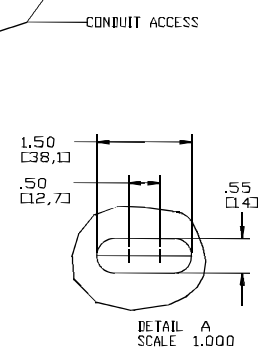
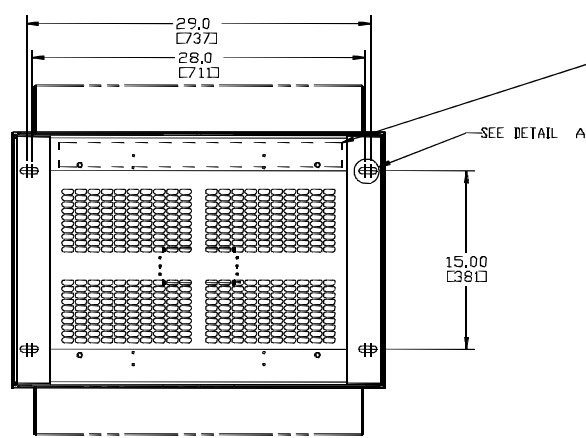
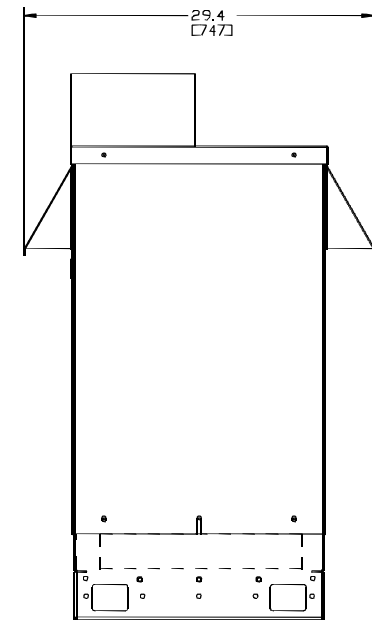
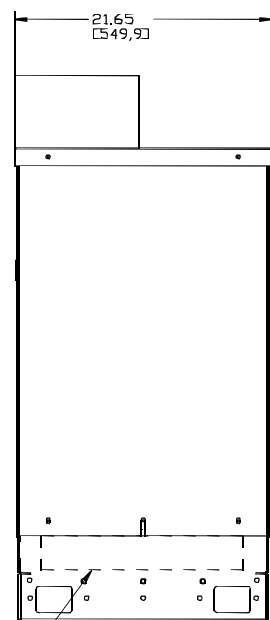
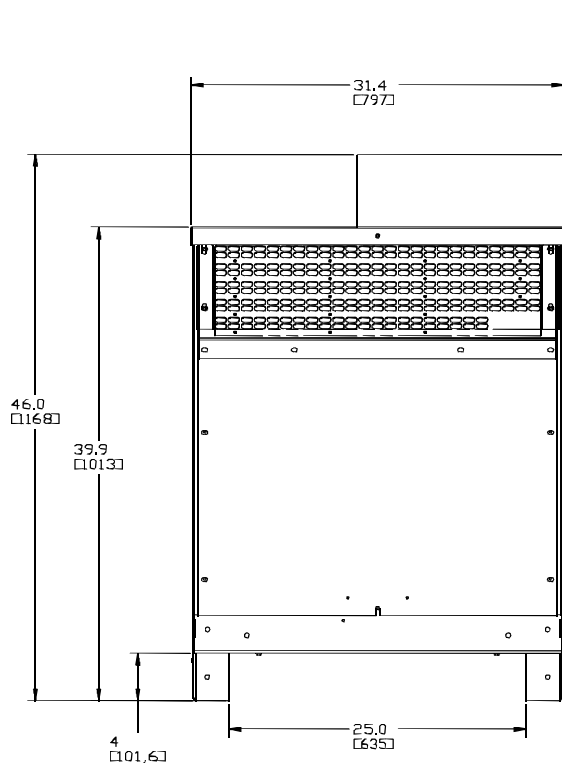
Doc No: **222-004397 -800**

Rev: **A01**

*Note: Powersmiths International Corp. reserves the right to revise these specifications without notice; refer to most recent document revision*

**Ref. Project/Unit ID:**

REV	ECO NO.	DESCRIPTION



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES	BY: [Signature] DATE: 05-JUN-14	<b>POWERSMITHS INTERNATIONAL CORP</b> <small>10 Brown Rd. Shelburne, Ontario, Canada L4B 2B5</small>
TOLERANCES ARE: FRACTIONS DECIMALS ANGLES 1-PLACE DECIMALS .005 .005 .005 2-PLACE DECIMALS .005 .005 .005 3-PLACE DECIMALS .005 .005 .005 ANGLES .1 .1 .1	APPROVED: [Signature]	
SURFACE FINISH: [Symbol]	APPROVED: [Signature]	DRAWING NO.: <b>300-003761-800</b>
MATERIAL:	APPROVED: [Signature]	REV.: <b>A00</b>
FINISH:	UNLESS OTHERWISE NOTED SHOWN ALL DIMENSIONS AND SHARP EDGES	SCALE: 0.188
	REF:	SHEET <b>1</b> OF <b>1</b>

PRO/ENGINEER