

# 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>300</b>						
	Continous Overload [kVA]	330	Max. Linear Load; 1 THD < 0.05 p.u. < 30°C Amb.					
	<b>Primary [V]</b>	<b>480</b>						
	<b>Secondaries [V]</b>	<b>120/208</b>						
	Frequency [Hz]/Phase/Shift	<b>60</b>	/ 3-Phase			-30 deg.		
	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%; Refer Powersmiths published tables for other ratings						
<b>Topology &amp; Materials</b>	Electrical Topology	Primary: Delta 3 -Wire	Secondary: Wye 4 -Wire					
	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				
	Impregnant / Properties	Epoxy/Polyester co-polymer; Dielectric 3.2kV/mil. x 3 mil. build; Low VOCs						
	B.I.L.	10kV (Primary & Secondary)						
<b>Regulatory Efficiency</b>	<b>35% Load @ 75 °C [%]</b>	<b>≥ 99.14</b> ; tested per DOE 10CFR431*, Subpart K, & CSA C802.2						
	Reference levels:	(300kVA): DOE 2016: 99.02%; CSA C802.2-12: 98.60%						
<i>*Powersmiths exceeds DOE test requirements by guaranteeing performance of every unit</i>								
<b>Load Performance</b>	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> [%]		99.09	99.19	99.18	99.05	98.69	98.17
	Linear Load Loss <sup>+</sup> [W]	<b>346</b>	460	607	864	1432	2967	5533
	[BTU/hr]	1181	1570	2071	2948	4886	10123	18879
	K7 Load (IEEE C57.110) <sup>+</sup> [%]		99.0	99.1	99.1	98.9	98.4	97.7
<sup>+</sup> Calculated @ 20°C Amb. Accuracy: Linear Loss ± 3% measurement tolerance per DOE 10CFR431; Efficiencies ± 0.05%								
<b>General Operation</b>	Temperature Rise/Ambient [°C]	<b>&lt; 130</b> (Full Linear Load)			40 (Per ANSI C57.96.2013)			
	Regulation (full load) [%]	1.7 (Cos Φ=1.0)			4.1 (Cos Φ =0.8)			
	Excitation [A]	1.6 (~ Effective Current)						
	Audible Noise [dBA]	52 (3 dBA less than NEMA ST-20 requirement 151-300kVA)						
<b>Impedance</b>	Z: +/- Sequence [%]	Z: 4.7	X: 4.4	R: 1.6	(per ANSI C57.12.91/UL1561)			
	N/A	Zo:	Xo:	Ro:	(per ANSI C57.12.91)			
<b>Abnormal</b>	Shortcircuit Current** [A]	Symmetrical Bolted faults		Primary: 7,823	Secondary: 18,054			
	**Zero Upstream Impedance	Asymmetrical Bolted faults		L - N: 18,054	L - L: 15,635			
	Inrush x FLA /@ % Source	3 /@ 3%	6 /@ 1½%	9 /@ 0%	(per IEEE 389)			
<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)						
	Paint / Finish	Polyester Powder Coat, Semi-Gloss, Textured; Color: Green (RAL 6018)						
<b>Physical</b>	Size & Drawing	TD1: (W: 38" D: 32" H: 52"); Drawing: 300-003779-800						
	Net Weight	1910 lbs / 868 kg						
<b>Quality, Standards &amp; Certification</b>	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>			
<b>Additional Specified Attributes &amp; Options:</b> (As listed)								



**POWERSMITHS INTERNATIONAL CORP.**

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**OPAL Series Model: E-Saver-33L-300-480-208**

Prepared: D. Faria

Date: 26-Nov-15

Part No: 222-004407 -100

Revised:

Date: 25-Jan-16

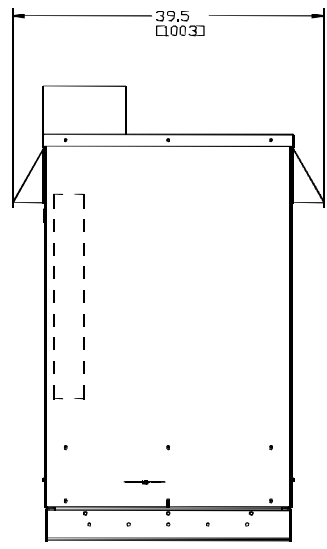
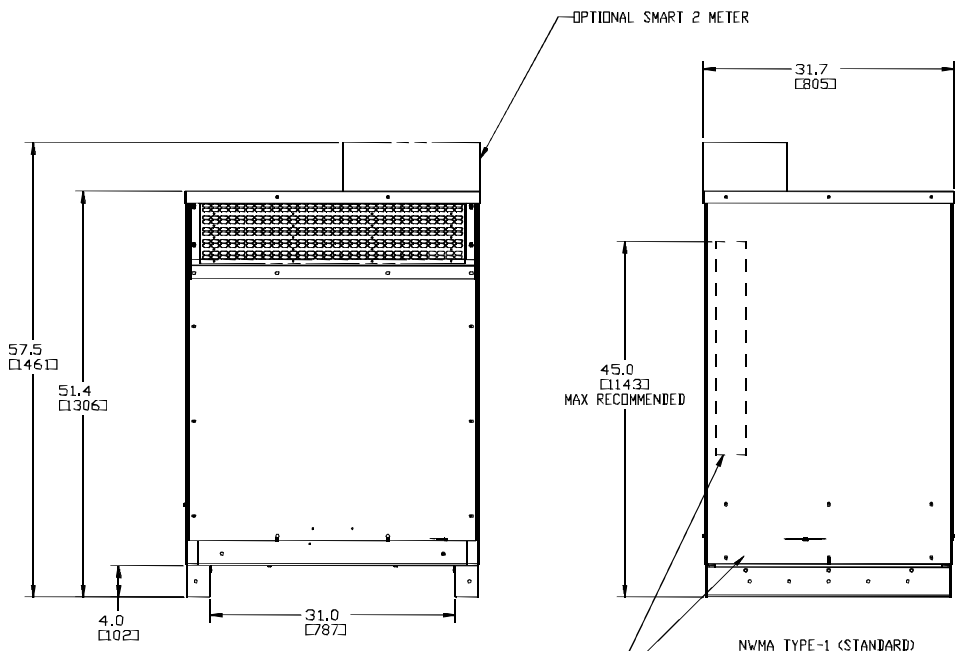
Doc No: 222-004407 -800

Rev: A01

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

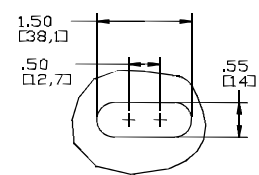
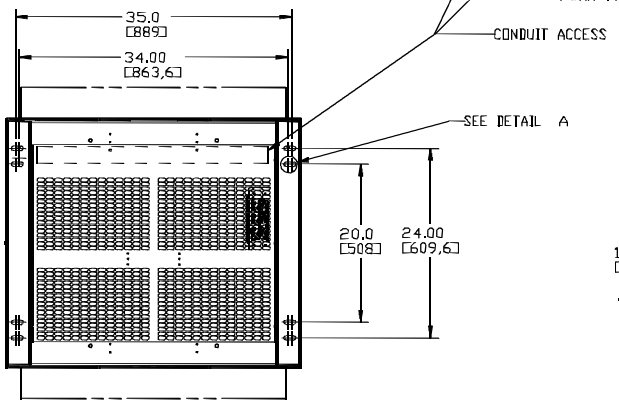
Ref. Project/Unit ID:

REV	ECO NO.	DESCRIPTION



NWMA TYPE-1 (STANDARD)

UL/NEMA TYPE-2/3R (OPTION WHEN SPECIFIED)  
NOTE: DRIP SHIELDS INSTALLED AT SITE



DETAIL A  
SCALE 1.000

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.	BY: [Signature]	DATE: 05-JUN-14	<b>POWERSMITHS INTERNATIONAL CORP</b> 10 Brown Rd. Brampton, Ontario, Canada, L6T 2S6	
TOLERANCES ARE:	APPROVED:			
1-PLACE DECIMAL	APPROVED:		TITLE:	
2-PLACE DECIMAL	APPROVED:		OUTLINE, TDI CASE	
3-PLACE DECIMAL	APPROVED:			
4-PLACE DECIMAL	APPROVED:			
SURFACE FINISH:	APPROVED:			
MATERIAL:	APPROVED:			
FINISH:	UNLESS OTHERWISE NOTED BRASS ALL DIMENSIONS AND SHARP EDGES	SCALE: 0.125	DRAWING NO. 300-003779-800	REV. A00
			REF:	SHEET 1 of 1

PRO/ENGINEER