

# E-Saver-25H

# 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>400</b>						
	Continous Overload [kVA]	480 <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>						
	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]	K13 @ 100%; >K30 @ 80%; <i>Refer Powersmiths published tables for other ratings</i>						
<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	Aluminium (Sec.)/Copper (Prim.); 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>≥ 99.19</b> ; <i>tested per DOE 10CFR431<sup>+</sup>, Subpart K, &amp; CSA C802.2</i>						
	Reference levels:	(400kVA): DOE 2016: 99.08%; CSA C802.2-12: 98.65%						
<sup>+</sup> Powersmiths exceeds DOE test requirements by guaranteeing min. stated efficiency of every unit								
<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* [%]		99.01	99.19	99.23	99.17	98.94	98.60
	Linear Load Loss* [W]	<b>549</b>	667	817	1079	1654	3178	5624
	[BTU/hr]	1873	2276	2788	3682	5643	10843	19189
	K4 Load (IEEE C57.110)* [%]		99.0	99.1	99.1	99.0	98.7	98.2
<i>*Calculated @ 20°C Amb. Accuracy: Loss ± 3% measurement tolerance per DOE 10CFR431; Efficiencies ± 0.05%</i>								
<b>General Operation</b>	Temperature Rise/Ambient [°C]	<b>&lt; 105</b> (Full Linear Load)			40 (Per ANSI C57.96.2013)			
	Regulation (full load) [%]	1.3 (Cos Φ=1.0)			3.7 (Cos Φ =0.8)			
	Excitation [A]	2.5 (~ Effective Current)						
	Audible Noise [dBA]	57 (6 dBA less than NEMA ST-20 > K13 requirement 301-500kVA)						
<b>Impedance</b>	Z: +/- Sequence [%]	Z: 4.5	X: 4.3	R: 1.2	(per ANSI C57.12.91/UL1561)			
	N/A	Zo:	Xo:	Ro:	(per ANSI C57.12.91)			
<b>Abnormal</b>	Bolted Faults (Output)** [A]	Symmetrical:	Source (reflected):	10,936	L/L/L-N:	25,236		
	**Zero Upstream Impedance	Asymmetrical:		L - N:	25,236	L - L:	21,854	
	Inrush x FLA (@ % Source Imp.)	3 @ 3%	7 @ 1½%	10 @ 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	TEO: (W: 52" D: 32" H: 61"); Drawing: 300-003763-800						
	Net Weight	2540 lbs /		1155 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.**

10 Devon Rd. Brampton, ON. L6T 5B5, Canada

[powersmiths.com](http://powersmiths.com)

**OPAL Series Model: E-Saver-25H-400-480-208**

Prepared: D. Faria

Date: 9-Feb-16

Part No: **225-004527 -100**

Revised: D. Faria

Date: 17-Feb-16

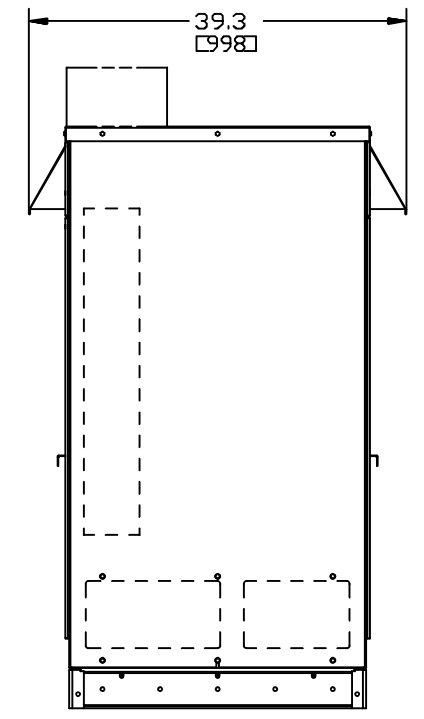
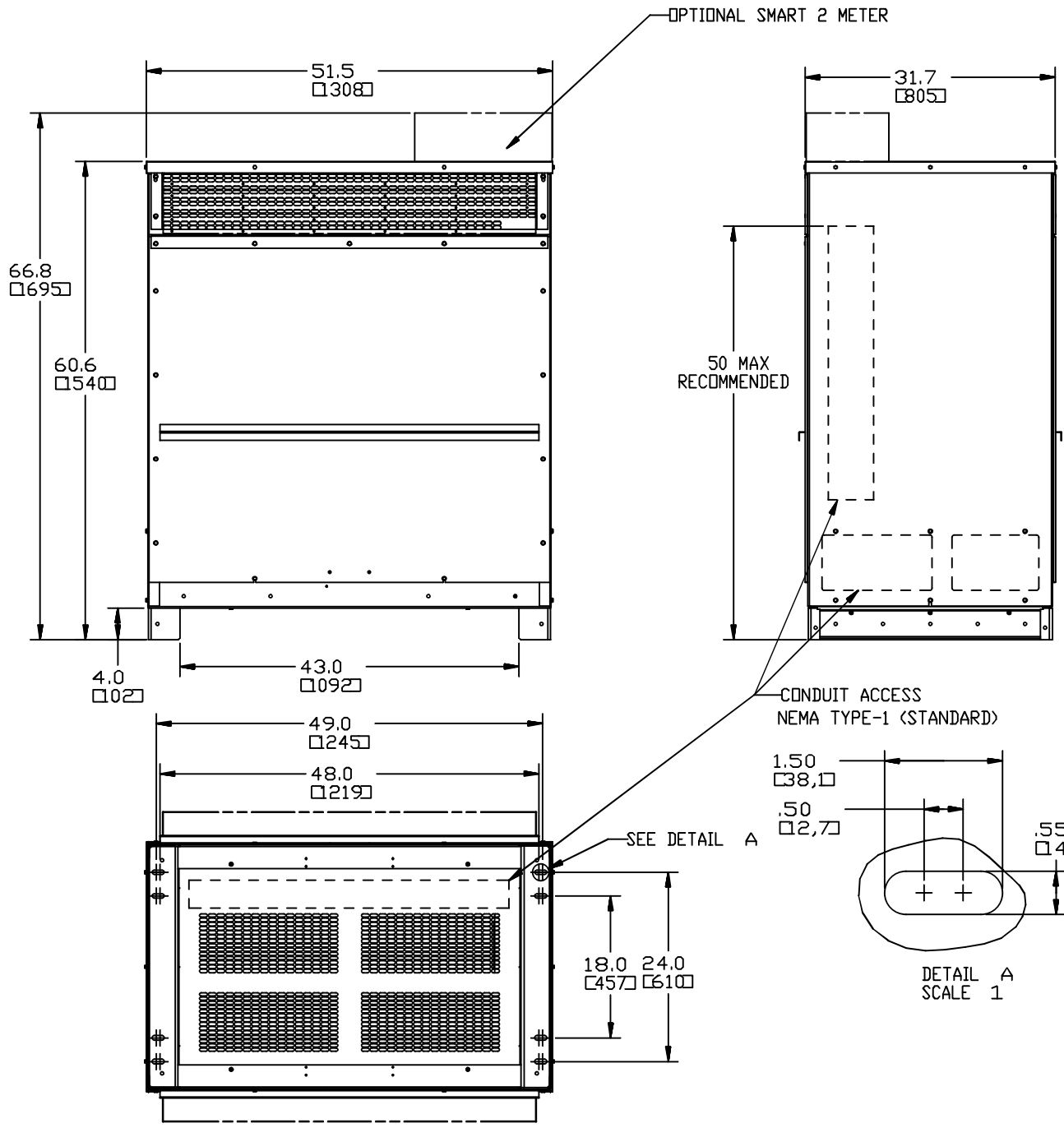
Doc No: **225-004527 -800**

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
A00		RELEASED
A01		UPDATED RAIN SHIELD
A02		ADDED WIDTH DIMENSION
A03		
A04		



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

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE: 1-PLACE DECIMAL ±.03 2-PLACE DECIMAL ±.010 3-PLACE DECIMAL ±.005 ANGULAR ±1/2° SURFACE FINISH: $\nabla$ 125 MATERIAL: FINISH: REMOVE ALL BURRS AND SHARP EDGES	BY	DATE	<b>POWERSMITHS INTERNATIONAL CORP</b> 10 Devon Rd. Brampton, Ontario, Canada, L6T 5B5 TITLE <b>OUTLINE, TE0 CASE</b> DRAWING NO. <b>300-003763-800</b> REF: SHEET 1 of 1
	APPROVED	DT 08-Sep-01	
	APPROVED		
	APPROVED		
	UNLESS OTHERWISE NOTED		REV.
	SCALE 0.100		A02

PRO/ENGINEER