

# 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</b> [kVA]	<b>300</b>						
	Continous Overload [kVA]	360 <span style="float:right">Max. Linear Load; 1THD &lt; 0.05 p.u. &lt; 30°C Amb.</span>						
	<b>Primary</b> [V]	<b>480</b>						
	<b>Secondaries</b> [V]	<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%; 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	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>99.14</b> ;tested per DOE 10CFR431 <sup>+</sup> , Subpart K, & CSA C802.2						
	Reference levels:	(300kVA): DOE 2016: 99.02%; CSA C802.2-12: 98.60%						
		<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* [%]		98.94	99.14	99.20	99.15	98.92	98.57
	Linear Load Loss* [W]	<b>445</b>	534	648	846	1281	2437	4307
	[BTU/hr]	1163	1423	1747	2320	3583	6947	12437
	K4 Load (IEEE C57.110)* [%]		98.9	99.1	99.1	99.0	98.7	98.2
		*Calculated @ 20°C Amb. Accuracy: Loss ± 3% measurement tolerance per DOE 10CFR431; Efficiencies ± 0.05%						
<b>General Operation</b>	Temperature Rise/Ambient [°C]	< <b>105</b> (Full Linear Load)			40 (Per ANSI C57.96.2013)			
	Regulation (full load) [%]	1.3 (Cos Φ=1.0)			3.4 (Cos Φ =0.8)			
	Excitation [A]	2 (~ Effective Current)						
	Audible Noise [dBA]	52 (6 dBA less than NEMA ST-20 > K13 requirement 151-300kVA)						
<b>Impedance</b>	Z: +/- Sequence [%]	Z:	4.1	X:	3.9	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):			8,923	L/L/L-N:	20,592
	**Zero Upstream Impedance	Asymmetrical:		L - N:		20,592	L - L:	17,833
	Inrush x FLA (@ % Source Imp.)	4 @ 3%	7 @ 1½%	11 @ 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	1950 lbs			/ 886 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>				UL1561 Listed for Non-linear loads		
<b>Additional Specified Attributes &amp; Options:</b> (As listed)								



**POWERSMITHS INTERNATIONAL CORP.**

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

**OPAL Series Model: E-Saver-25H-300-480-208**

Prepared: D. Faria

Date: 26-Nov-15

Part No: **225-004524 -100**

Revised: D. Faria

Date: 25-Jan-16

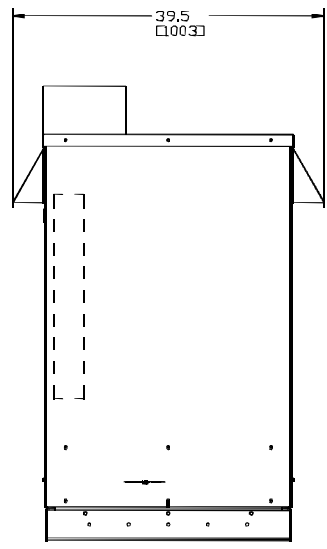
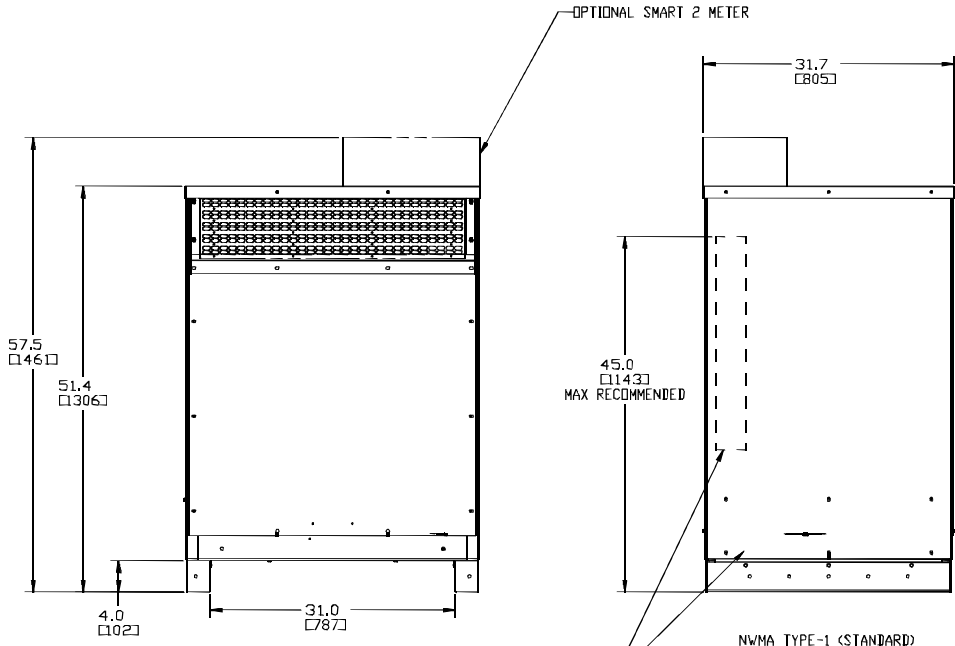
Doc No: **225-004524 -800**

Rev: **A01**

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

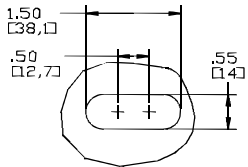
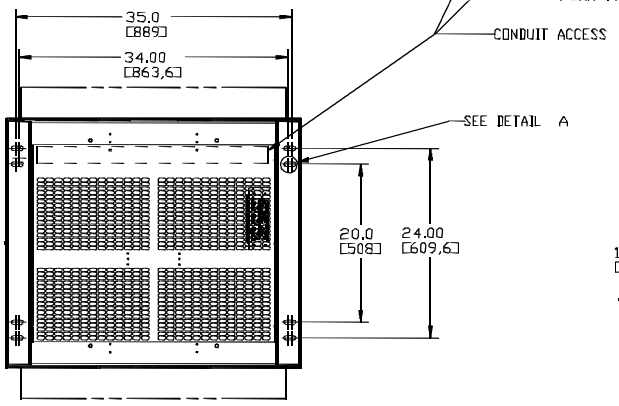
Ref. Project/Unit ID:

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	DATE	POWERSMITHS INTERNATIONAL CORP 10 Brown Rd. Brampton, Ontario, Canada, L6T 2B5
	APPROVED	BT	
TOLERANCES ARE:	INCH	MM	TITLE
1-PLACE DECIMAL	±.005	±.08	
2-PLACE DECIMAL	±.002	±.05	DRAWING NO. 300-003779-800
3-PLACE DECIMAL	±.001	±.02	
4-PLACE DECIMAL	±.0005	±.01	SCALE 0.125
SURFACE FINISH:	✓		
MATERIAL	APPROVED		PRO/ENGINEER
FINISH	UNLESS OTHERWISE NOTED BRUSH ALL SURFACES AND SHARP EDGES		