T1000-30H

Ultra Efficient Harmonic Mitigating Dry Type Transformer

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

Electrical Ratings	**Power** [kVA]	**400**
	Continous Overload [kVA]	480 — *Max. Linear Load; I THD < 0.05 p.u. < 30°C Amb.*
	Primary [V]	**480**
	Secondaries [V]	**120/208**
	Frequency [Hz]/Phase/Shift	**60** / 3-Phase — *0 deg.*
	Primary Taps	2 x 2 1/2 % FCAN; 4 x 2 1/2 % FCBN; (6 Taps)
	K-Rating (IEEE C57.110) [K]	K20 @ 100%; >K30 @ 80%; *Refer Powersmiths published tables for other ratings*
Topology & Materials	Electrical Topology	Primary: Delta 3 -Wire Secondary: Zig-Zag 4-wire
	Terminals: Material / Rating	Neutral: Copper/200% Line: Copper/100% Ground: Copper Bus
	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)
Regulatory Efficiency	**35% Load** @ 75 °C [%]	**≥ 99.17** *;tested per DOE 10CFR431*, Subpart K, & CSA C802.2*
	Reference levels:	(400kVA): DOE 2016: 99.08%; CSA C802.2-12: 98.65%
	**Powersmiths exceeds DOE test requirements by guaranteeing min. stated efficiency of every unit*	

Load Performance	Percent Loading:	**No Load**	**16.7%**	**25.0%**	**35.0%**	**50.0%**	**75.0%**	**100.0%**
	Linear Load Efficiency+ [%]		99.00	99.17	99.21	99.14	98.89	98.53
	Linear Load Loss+ [W]	**541**	666	823	1100	1704	3303	5858
	[BTU/hr]	1846	2272	2808	3753	5814	11270	19987
	K13 Load (IEEE C57.110)* [%]		98.9	99.1	99.0	98.9	98.5	97.9

+Calculated @ 20°C Amb. Accuracy: Loss ± 3% measurement tolerance per DOE 10CFR431; Efficiencies ± 0.05%; Non-linear Load L-N

General Operation	Temperature Rise/Ambient [°C]	**< 105** *(Full Linear Load)*		40	*(Per ANSI C57.96.2013)*
	Regulation *(full load)* [%]	1 *(Cos Φ=1.0)*	|	3.3	*(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)			

Impedance	Z: +/- Sequence [%]	Z: 4.0	X: 3.8	R: 1.1	*(per ANSI C57.12.91/UL1561)*		
	Zero Sequence [%]	Zo: 0.74	Xo: 0.41	Ro: 0.62	*(per ANSI C57.12.91)*		

Abnormal	Shortcircuit Current** [A]	Symmetrical Bolted faults		Primary: 12,282		Secondary: 28,342	
	***Zero Upstream Impedance**	Asymmetrical Bolted faults		L - N: 39,679		L - L: 34,362	
	Inrush *x FLA /@ % Source*	4	/@ 3%	7	/@ 1½%	11	/@ 0% *(per IEEE 389)*

Enclosure Type & Installation	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)
Physical	Size & Drawing	TE0: (W: 52" D: 32" H: 61"); Drawing: 300-003763-800
	Net Weight	2755 lbs / 1252 kg
Quality, Standards & Certification	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	**UL/CUL Listed; CSA Certified** ***UL1561 Listed for Non-linear loads***
Additional Specified Attributes & Options: *(As listed)*	Shields (1S):	| 1 Electrostatic Shield > 60 (CM Attenuation @ 10kHz)
	Harmonic Treatment:	| Triplens (3rd, 9th...) plus 5th, 7th with complimentary system 30° Phase shifts

POWERSMITHS

POWERSMITHS INTERNATIONAL CORP.

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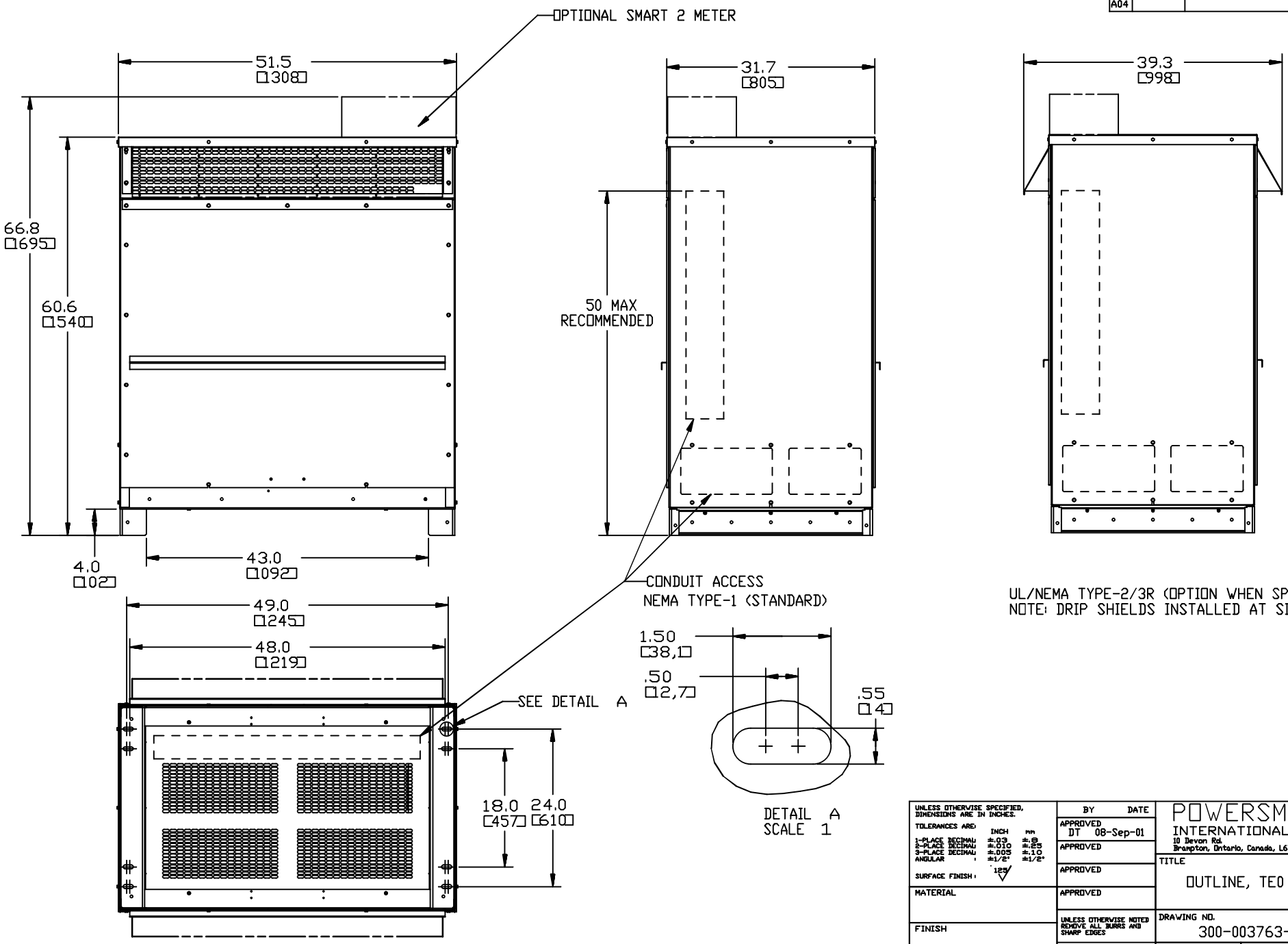
OPAL Series Model: **T1000-30H-400-0-480-208**

Prepared:	D. Faria	Date: 3-Feb-16	Part No:	**222-004642 -100**	
Revised:		Date:	Doc No:	**222-004642 -800**	Rev: **A00**

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		



UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.

TOLERANCES ARE:

	INCH	mm
1-PLACE DECIMAL	±.03	±.8
2-PLACE DECIMAL	±.010	±.25
3-PLACE DECIMAL	±.005	±.10
ANGULAR	±1/2°	±1/2°

SURFACE FINISH: 125

MATERIAL

FINISH

BY	DATE
APPROVED DT	08-Sep-01
APPROVED	
APPROVED	
APPROVED	

UNLESS OTHERWISE NOTED REMOVE ALL BURRS AND SHARP EDGES

SCALE 0.100

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Brampton, Ontario, Canada, L6T 5B5

TITLE
OUTLINE, TE0 CASE

DRAWING NO. 300-003763-800

REV. A02

REF:

SHEET 1 of 1

PRO/ENGINEER