

3 Phase Compartmental Pad Mounted Transformer
 Part Number: CWS-300-3P-12.4-208Y

CWS Engineering			Aug-25
353 West Grove Ave, Orange, CA 92865			
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Description		Unit	Specifications
General			
1.1	Manufacturer		CWS Engineering
1.2	Transformer Type		Pad Mounted, Compartmental-Type
1.3	Transformer Configuration		Liquid Filled Pad Mounted
1.4	Transformer Feed Type		Loop Feed
1.5	Operation		Step-Down Operation (Not Approved for Step-Up)
1.6	Phase		Three-Phase
Electrical Characteristics			
2.1	Capacity	KVA	300 KVA
2.1a	Vector Group		DYN1
2.2	Primary Voltage	V	12470V
2.2a	Primary Voltage Switch		N/A
2.2b	Primary Voltage Class	kV	15 kV Class
2.2c	Primary Phasor		Delta
2.2d	Primary BIL	kV	95 kV
2.3a	Secondary Voltage		208Y/120
2.3b	Secondary Voltage Class		1.2 kV Class
2.3c	Secondary Phasor		Wye-N
2.3d	Secondary BIL	KV	30 KV
2.4	Frequency	Hz	60 Hz
2.5	Temperature Rise	°C	65°C
2.6	Insulation Rating	°C, °F	Class E Insulation - 120°C, 248°F
2.7	Forced Air (Fans)		None
2.8	Cooling Class		KNAN; Self-Cooled
2.9a	Tap Changer		5-Position Tap Changer
2.9b	Tap Qty		(2) FCAN Above Taps, (2) FCBN Below Taps
2.9c	Tap %	%	2.5%
2.9d	Tap Changer Switch Rating	Amp, kV	200-Amp, 15 kV
2.9e	Tap Changer Switch Location		High Voltage (HV) [Left Side] Front Compartment
Ratings			
3.1	Efficiency Ratings		Meets/Exceeds DOE 2016 Efficiency Ratings
			Meets/Exceeds CSA Efficiency Ratings
3.2	Complies with		ANSI / IEEE #C57.12.00, 12.28, 12.29, 12.34, 12.35, 12.70, 12.110, 12.131 ANSI / IEEE #C62.11, C62.22 ANSI / IEEE #386 ANSI / IEEE #C2 ANSI / IEEE #C37.47 ANSI Z535.4 ASTM D3487, D6871 NEMA 260-1996 10 CFR Part 431 CSA C2.1-06, C50, C88, C88.1, C88-16, C227.4, C227.5, C802-3, C802.1
Features			
3.3			Pentahead Bolt Entry Assembly High-Fire Point Insulating Fluid Non-PCB Insulating Fluid Tamper Proof Housing Hinged Front Compartment Doors, Pad Lockable NEMA 3R Wiring Compartment Hot Stick Included, HV Door Mount
3.4	Efficiency	%	99% Based on transformer operating at 50% of nameplate base kVA.
Load Losses Based on 85°C Reference Temp.			
4.1	No Load Loss (in watts):	W	± 500W
4.2	Full Load Loss (in watts):	W	± 3000W
4.3	Total Load Loss (in watts)	W	± 3500W
4.3a	Total Losses at 55°C LL Temp.& 20°C NL Temp.		
4.3b	Total Load Loss (in watts) at 50%		± 1164W Note: Losses offered are typical only, not guaranteed
Connections			
5.1	Impedance	%	1.2-6.0% Typical, Target 3.10-5.75%
5.2	Primary Connection Type		Dead Front
5.2a	Primary Termination Arrangement		V Terminal Arrangement
5.2b	Primary Termination	A	Externally Clamped Well Bushings w/ Removable Studs, 200A Load Break Elbows w/ Inserts
5.2c	Primary Connection Qty		(6) Primary Connections for use w/ Elbow Connectors
5.2d	Primary Parking Stand Qty		(6) Welded Brackets for Installing Accessory Parking Stand Bushings
5.2e	Primary Bushing Rating	kV, A	15 kV Class, 95 kV BIL, 200A, Load Break, IEEE 386 Color Red
5.2f	Primary Neutral Connection		N/A
5.2g	Primary Surge Arrestors		(3) High Voltage Elbow Surge Arrestors, Included
5.2h	Primary Surge Arrestor Voltage Rating		18 kV Class Elbow Arrestor
5.2i	Primary Surge Arrestor MCOV Rating		15.3 kVrms
5.2j	Primary Over Current Protection (OCP)		Bayonet Expulsion Fuse in series w/ Partial Range Current-Limiting Fuse
5.2k	Primary Over Current Protection Method		Fused, Oil-Immersed
5.2l	Primary Over Current Protection Holder		Bayonet Fuse Holder w/ Flapper Valve and External Drip Shield
5.2m	Primary Grounding Provisions		(1) NEMA Ground Bar attached to tank via (2) Welded Ground Bungs in HV Cabinet
5.3	Secondary Connection Type		Live Front
5.3a	Secondary Termination Arrangement		Staggered Terminal Arrangement

5.3b	Secondary Connections		NEMA Spade Terminals, 4-Hole Spade, Externally Clamped, Accepts up to (4) Double Lug connections with
5.3c	Secondary Connection Qty		(4) Externally Clamped One-Piece Epoxy Bushings Copper Threaded Studs
5.3d	Secondary Connection Supports		N/A
5.3e	Secondary Over Current Protection (OCP)		N/A
5.3f	Secondary Neutral Connection		Secondary X2 Neutral Grounded to Tank via 1/2"-13 UNC Tapped Hole, 7/16" Deep Bung & Copper Ground
5.3g	Secondary Grounding Provisions		(1) NEMA Ground Bar attached to tank via (2) Welded Ground Bungs in LV Cabinet
5.4	Metering Current Transformer (CT)		N/A
5.4a	Metering Panel		N/A
5.5	Auxiliary Control Panel		N/A
5.6	Load Break Switch		4-Position Load Break Switch
5.6a	Load Break Switch Qty		1
5.6b	Load Break Switch Rating	Amp, kV	200-Amp, 15 kV
5.6c	Load Break Switch Location		High Voltage (HV) Front Compartment
5.7	Efficiency Standard(s)		Meets DOE 2016 Standards, Meets CSA Standards Meets ANSI/IEEE Standards
5.8	K-Factor Rating (Harmonic Mitigation)		K-1 (Standard)
5.9	Pulse Drive Rating		N/A
	Physical Characteristics / Accessories		
6.1	Insulation Fluid		Biodegradable Natural Vegetable Oil Ester Insulating Fluid - Non-PCB Fluid
6.2	Fluid (Oil) Capacity	Gallons	133 Gallons
6.2a	Fluid (Oil) Weight	lbs	1,019 lbs
6.3	Liquid Level Indicator		Analog Dial Gauge
6.4	Temperature Indicator		Analog Dial Gauge
6.5	Pressure/Vacuum Indicator		Analog Dial Gauge
6.5a	Pressure Relief Device		Included, Automatic Action
6.6	Fault Indicator		N/A
6.7	Gas Sampler Valve		Included, Schrader Valve
6.8	Fill Valve	inch	1" NPT Port w/ Removable Bolt Plug
6.8a	Fill Valve Location		Front Compartment
6.9	Drain Valve	inch	1" NPT Port w/ 5/8" NPT Sampler Valve
6.9a	Drain Valve Location		Front Compartment
7.1	Winding Material		Copper
7.2	Ambient Temperature Rating	°C	40°C
7.2a	Ambient Operating Temperature Range	°C, °F	negative 40°C to positive 40°C (negative 50°F to positive 104°F)
7.3	Sound Level	dBA	55 dBA
7.4	Elevation Level	ft	3,300ft above Sea Level
7.5	Core Material		Grain Oriented Steel
7.6	Tank Material		Coated Steel
7.6a	Cabinet Material		Coated Steel
7.7	Portability		Lifting lugs, provisions for jacking under base, w/ base construction suitable for using rollers or skidding
7.8	Housing Type		Compartmental Air-Filled Cabinet w/ Locking Doors, HV Compartment Left, LV Compartment Right, Steel Barrier
7.9	Enclosure Rating		HV Door Spring Loaded Release Pin in LV Compartment
8.1	Seismic Rating		NEMA 3R Weatherproof Wiring Cabinet, Sealed Tank
8.2	Paint Type		Yes
8.2a	Finish Color		Weatherproof and UV Resistant Epoxy Coating and Undercoating
8.3	Mounting		Munsell™ 7.0 GY 3.29/1.5 Bell Green
8.4	Conduit Opening		Pad Mounted
8.5	HV Compartment Base Wireway Dimensions	inch	Bottom Feed Underground Entry/Exit
8.5a	LV Compartment Base Wireway Dimensions	inch	20"-W x 5"-D
8.5b	MV/LV Compartment Cabinet Depth	inch	16"-W x 5"-D
8.6	Tank Cover Access Handhole	inch	20"-D
8.7	Dimensions	inch	N/A
8.8	Dry Weight (w/o Oil)	lbs	61"-W x 54"-D x 69"-H
8.9	Total Weight (Liquid Filled)	lbs	1580 lbs
			3637 lbs
	Labeling		
9.1			Externally Stencilled (Painted) KVA Rating
			Externally Stencilled (Painted) Voltage Rating
			External Non-PCB Label
			External Warning & Danger Label
			External Barcode Label
			Internal Busing & Accessory Labeling
			Stainless Steel Riveted Nameplate
	Factory Tests		
10.1			Winding Resistance Test
			Insulation Resistance Test
			Voltage Ratio Error Test
			Short-circuit Impedance Test
			No-load Loss (Wattage) Test
			Load Loss (Wattage) Test
			Induced Voltage Withstand Test
			Separate Source Voltage Withstand Test
			Pressure Integrity Test Test