

# Three-Phase Pad-Mount Transformers



## General Characteristics

Product Name	Pad-Mounted Distribution Transformer
Voltage Class	15 / 25 / 35 kV
Power Rating	45 – 10000 kVA
Cooling	ONAN / KNAN
Insulating Fluid	Mineral Oil / R-Temp / FR3 / Other
Mounting	Pad-mounted, Dead-front or Live-front
Standards	IEEE C57.12.00, DOE 2016, ANSI C57.12.28, NEMA TR-1



## Standard Features

Tank Access	Bolted cover	45–1000 kVA
	Welded cover with handhole	1500–7500 kVA
Security	Three-point latching door	For high-voltage cabinet
Lightning Protection	Lightning arrester provisions	Live-front units
Nameplate	Laser-scribed anodized aluminum	Durable and permanent
Fluid Access	One-inch drain valve with sampler	In low-voltage compartment (45–7500 kVA)
	One-inch upper fill plug	Standard fluid fill
Pressure Management	Automatic pressure relief device	Built-in
Cabinet Depth	20" / 24" / 30" cabinet	Based on rating: 20" (45–1000 kVA), 24" (1500–7500), 30" (34.5 kV)
Installation	Removable sill	Easier transformer placement
Internal Divider	Steel divider between HV and LV compartments	Electrical separation
Bushings	RTE 15/25 kV 200 A (HTN) bushing wells	Dead-front
	RTE 15/25/35 kV 200 A integral bushings	Dead-front
	Cooper wet-process porcelain bushings	Live-front
Lifting Hardware	Lifting lugs	4 included
Grounding	Stainless steel ground pads	45–500 kVA
	NEMA 2-hole ground pads	750–7500 kVA
Hardware	Stainless steel cabinet hinges and mounting	Corrosion-resistant studs

## Optional Accessories

Monitoring	Liquid level gauge	Optional auxiliary contacts
	Pressure vacuum gauge	Analog type
Switching	Dial type thermometer	Optional auxiliary contacts
	On/Off loadbreak switches (1-3)	Manual switches
	4-position loadbreak switch	V-blade or T-blade
	Delta-wye switch	Manual or automatic
Bushings & Inserts	Kyle® VFI	Vacuum Fault Interrupter
	6/8/10-hole LV spade	45-500 kVA
	12/16/20-hole LV spade	750-2500 kVA
	LV bushing supports	Enhanced terminal protection
	RTE 15/25 kV 200 A bushing inserts	High-voltage
	RTE 15/25 kV 200 A feedthru inserts	
	RTE HTN bushing wells with removable studs	
Safety	RTE 15/25/35 kV 600 A one-piece deadbreak bushings	
	Hexhead captive bolt	Tamper-resistant
	High-voltage warning signs	OSHA/ANSI compliant
	Ground connectors	Stainless steel
Hardware / Mechanical	Drain/sampling valve (HV side)	Optional
	Breaker mounting provisions	Optional
	Touch-up paint	Color-matched
	Stainless steel nameplate	Optional
	Stainless steel tank base/cabinet/sides/sill	Enhanced corrosion protection
	Service entrance (2") in sill or cabinet side	Cable routing
Gas System	Nitrogen blanket	With bleeder and purge valve
Windings	All copper windings	Optional upgrade
Fluid Fill	Globe type upper fill valve	Alternate to std. fill plug
Certifications	Factory Mutual approved	Optional
Efficiency	K-Factor rated transformer	For non-linear loads

## Construction Details

### Core

The transformer core is designed for high efficiency using rectangular wound configurations, ensuring low excitation current, minimal core losses, and quiet operation. Cores are available in five-leg or triplex configurations and are constructed from precision-cut, grain-oriented silicon steel laminations. Each lamination is fully annealed after cutting, and core stacking is done with tight joint alignment to eliminate corner gaps. This results in superior performance with reduced ferroresonance susceptibility and better efficiency at loading levels above 50% compared to amorphous core alternatives. Stacked core designs are also available upon request.

### Coils

Transformer coils are engineered for compactness, mechanical rigidity, and electrical balance, in compliance with ANSI C57.12.26 standards. Coils are hydraulically pressed and baked, bonding wire and insulating paper into a solid structure with high dielectric and short-circuit strength (certified per ANSI C57.12.90). Diamond-pattern epoxy-coated paper enhances mechanical strength and allows coolant to flow freely. Primary windings are made from varnished or paper-insulated copper or aluminum wire, flattened during winding to increase surface contact and space efficiency. Secondary coils use full-width aluminum strip with burr-free edges and are insulated with epoxy-diamond paper between each layer. All insulation levels meet ANSI C57.12.00 standards.

### Insulating Fluid

Cooper Power Systems transformers are available with a range of dielectric coolants, including standard mineral oil and specialized fluids like R-Temp and Envirotemp® FR3. These fluids are degassed and tested for dryness and dielectric strength prior to filling. R-Temp fluid is a less-flammable, biodegradable coolant with superior dielectric strength, suitable for installation next to or inside buildings. Envirotemp FR3 is a natural ester-based, biodegradable fluid with enhanced fire safety and food-grade additives. All fluids are treated under strict quality control protocols to ensure longevity and performance.

### Vacuum Processing

Moisture removal is critical to transformer performance and lifespan. Cooper's advanced vacuum processing simultaneously heats and dries transformer components, removing internal moisture and air. By energizing the coils under shorted conditions, internal heating drives moisture to the surface, where it is removed via vacuum. Degassed insulating fluid is added under vacuum, ensuring full saturation of coils and insulation. This method surpasses hot air dry-out systems by achieving consistently low residual moisture levels, maximizing dielectric integrity and minimizing corona risk.

### Tank

Tank assemblies are built from cold-rolled precision-cut steel and pressure-tested to 7 psig without distortion. Tanks include rolling bases, jack pads, and lifting hooks. For units up to 1000 kVA, a bolted cover allows for internal cleaning and repainting before final assembly, minimizing contamination. Covers are domed for moisture run-off and secured with high-strength bolts concealed by a protective cover guard. Tank interiors are painted light gray to improve internal visibility.

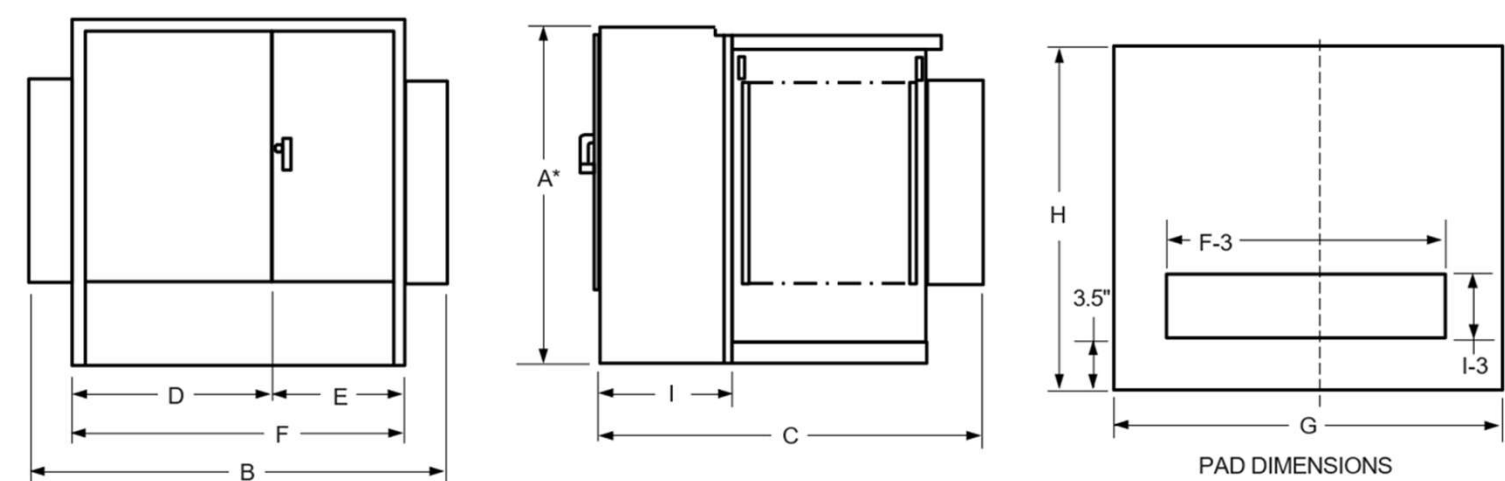
### Cabinet

The cabinet design incorporates patented high-security features exceeding ANSI standards. A three-point latch and concealed stainless steel hinges secure the low-voltage compartment. Access is restricted with a tamper-proof silicon bronze pentahead bolt. Cabinets are available in 20", 24", or 30" depths depending on kVA rating and accessories. Full-height doors open 120° and include stops for service convenience.

### Finish

A multi-stage finishing process exceeds ANSI corrosion protection standards. An eight-stage phosphate pretreatment improves paint adhesion, followed by three layers of electro-deposited epoxy primer (E-coat). A polyester powder topcoat (P-coat) provides impact and abrasion resistance, finished with a UV-resistant urethane clear coat.

## Dimensions



kVA Rating	A1	B	C	D	E	F	G	H	I	Gallons of Fluid	Approx. Weight (lbs.)
45	50	68	39	42	26	68	72	43	20	150	2600
75	50	68	39	42	26	68	72	43	20	160	2800
112.5	50	68	49	42	26	68	72	53	20	165	2900
150	50	68	49	42	26	68	72	53	20	170	3350
225	50	72	51	42	30	72	76	55	20	180	3800
300	50	72	51	42	30	72	76	55	20	190	4450
500	50	89	53	42	30	72	93	57	20	240	5700
750	64	89	57	42	30	72	93	61	20	380	8200
1000	64	89	59	42	30	72	93	63	20	480	10100
1500	73	89	86	42	30	72	93	90	24	570	13950
2000	73	72	87	42	30	72	76	91	24	640	15000
2500	73	72	99	42	30	72	76	103	24	760	18850
3000	73	84	99	46	37	84	88	103	24	780	19000
3750	84	85	108	47	38	85	88	112	24	800	19500
5000	84	96	108	48	48	96	100	112	24	930	29400
7500	94	102	122	54	48	102	100	126	24	1580	41900

## Percentage Impedance Voltage

kVA Rating	≤150 kV BIL (≤600 V)	≤150 kV BIL (>600 V)	200 kV BIL (≤600 V)	200 kV BIL (>600 V)	250 kV BIL (≤600 V)	250 kV BIL (>600 V)
45-75	1.00-5.00	-	7.25	-	7.75	-
112.5-300	1.20-6.0	5.5	7.25	7.0	7.75	7.5
500	1.50-7.00	5.5	7.25	7.0	7.75	7.5
750-2500	5.75	5.5	7.25	7.0	7.75	7.5
3000-5000	5.75	5.5	7.25	7.0	7.75	7.5
7500	-	6.5	7.25	7.0	7.75	7.5

101 College Rd E,  
Princeton, NJ 08540 USA

+1-640-250-3847

info@premier-transformer.com

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