

Single-Phase Overhead

GENERAL

Cooper Power Systems manufactures a complete line of single-phase overhead-type distribution transformers. Single-phase transformers are available as conventional (5-167kVA), completely self-protected (CSP 5-75kVA), or MagneX[®] protected (5-167kVA) in a variety of ratings to meet or exceed the requirements of applicable ANSI and NEMA standards. Units designed per Rural Utilities Service (RUS) standards are also available.

CSP transformers have direct connected primary arresters, secondary circuit breakers, and internal primary voltage fuses. This eliminates the need for separately mounted protective devices and provides reduced installation costs.

The MagneX[®] Interrupter is an overcurrent protective device that protects distribution transformers from damaging overloads and secondary faults, and is also used for switching the transformer “on” or “off.”

STANDARD FEATURES

- Meet or exceeds ANSI and NEMA standards
- Meets DOE Energy Efficiency Standard 10 CFR Part 431 for distribution transformers
- EPRI recommended interlaced core-type design (5-75 kVA)
- Tank coating exceeds ANSI C57.12.31
- Cover with a minimum dielectric strength of 8 kV
- Tin-plated high and low-voltage bushing terminals to accommodate aluminum or copper conductors
- Laser-engraved nameplate
- Wet process porcelain high-voltage bushings resistant to high-voltage corona
- Tank grounding provisions
- Envirotemp FR3 fluid or electrical grade mineral oil
- Heavy-duty lifting lugs and hanger brackets per ANSI requirements¹
- Visible cover ground on units with cover-mounted bushings

¹Lugs and brackets per ANSI requirements up to 4500 lbs.

- Recessed tank bottom that offers protection when sliding over rough surfaces
- Automatic pressure relief device
- Polymer low-voltage bushings (5-75 kVA)
- Arrester mounting and grounding provisions
- Internal mark indicating the proper oil level
- Permanently stamped secondary leads to ensure proper identification
- Corrosion-resistant cover band
- Quality System ISO 9001 certified

OPTIONAL ACCESSORIES

- Taps either two 2.5 % above and below; four 2.5% below; NEMA taps or special taps
- Externally-operable tap changer switches for safe operation
- Multiple voltage primaries (5-75kVA)
- Externally-operable multiple voltage switches for safe operation
- High corrosion area protection with 304 or 409 stainless steel hardware and tanks
- MagneX
- Birdguards
- Envirotemp FR3 fluid where less-flammable fluid is required and superior environmental characteristics are desired
- Cover with a minimum dielectric strength of 15 kV
- Extra creep high voltage bushings (up to 150 kV BIL)
- Porcelain low-voltage bushings
- CSA conforming design
- Special designs conforming to international specifications
- Drain/sampling valve
- Pressure vacuum gauge (tank size limitations apply)
- Filter press connections
- Temperature gauge (tank size limitations apply)
- Liquid level gauge (tank size limitations apply)
- High efficiency transformers at 0.05% or higher above DOE efficiency



Figure 1.
Single-phase overhead conventional transformer.



Figure 2.
Single-phase overhead conventional transformer.



Figure 3.
MagneX[®] protected transformer.

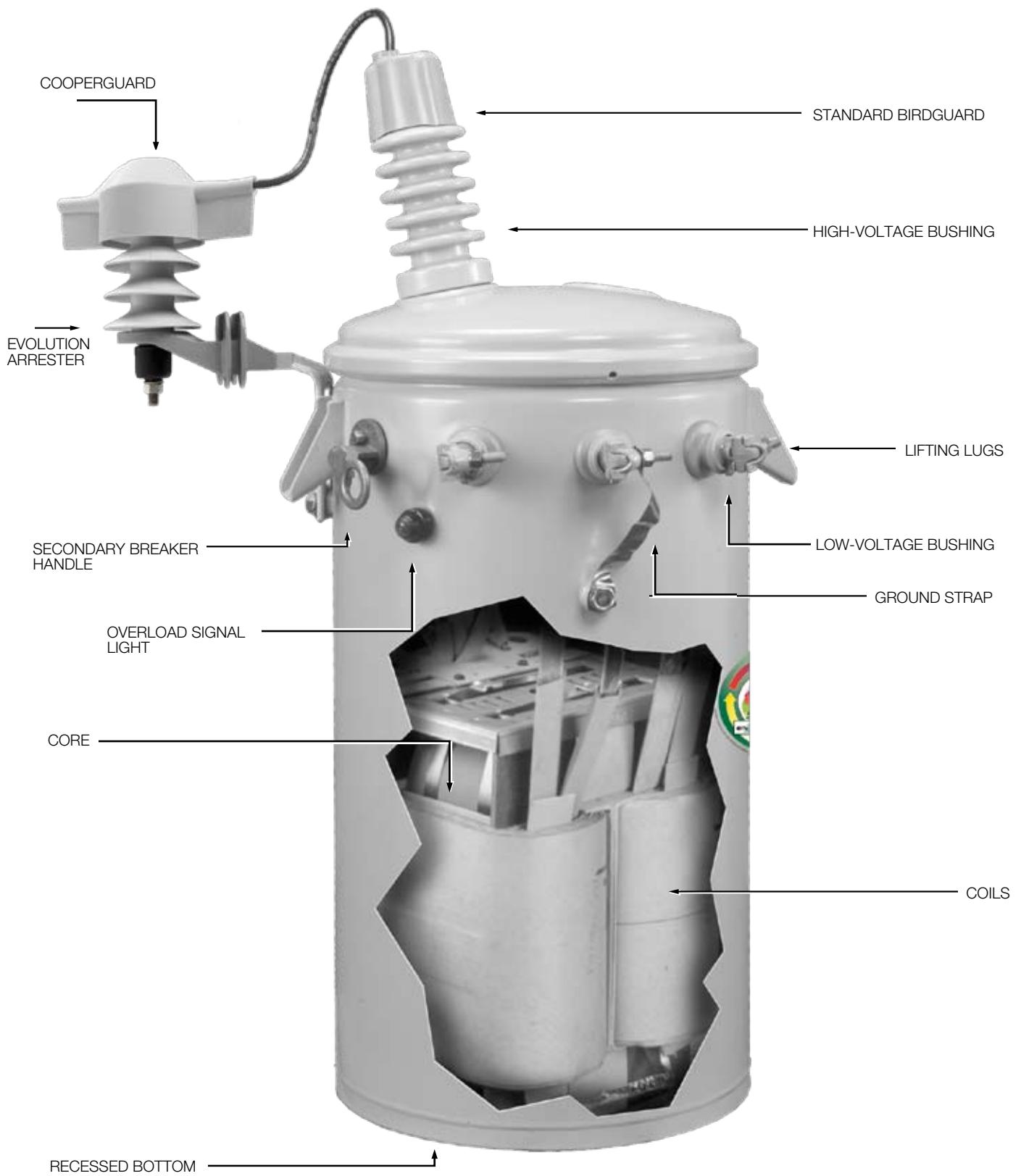


Figure 4.
Single-phase overhead CSP transformer.

SINGLE-PHASE OVERHEAD CONVENTIONAL

Product Scope:
kVA: 5-167
Primary Voltage: 2400-19,920 V
Secondary Voltage: 120-600 V

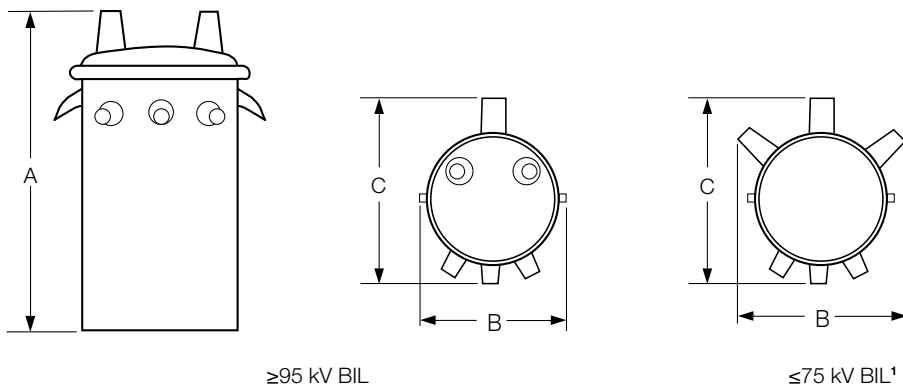


TABLE 1
Typical Dimensions and Weights^{2,3}

kVA	Dimensions (in.)							Approx. Weight (lbs.)
	"A"				"B"		"C" ¹	
	≤75 kV BIL	95 kV BIL	125 kV BIL	150 kV BIL	≤75 kV BIL	≥95 kV BIL		
5	26	32	42	45	28 ¹	17	20	220
10	26	32	42	45	28 ¹	17	20	220
15	30	35	46	49	28 ¹	17	20	280
25	31	38	48	51	30 ¹	20	22	350
37.5	33	40	52	55	31 ¹	20	24	450
50	36	44	52	55	33 ¹	22	25	600
75	39	51	54	57	33 ¹	24	28	820
100	40	55	58	61	33 ¹	27	31	1100
167	47	55	58	61	35 ¹	35	37	1400

¹ Includes sidewall mount H.V. bushings.

² Includes radiators.

³ Weights, gallons of fluid and dimensions are for reference only, and not for construction. Please contact Cooper Power Systems for exact dimensions.

SINGLE-PHASE OVERHEAD COMPLETELY SELF PROTECTED

Product Scope:
kVA: 5-75
Primary Voltage: 2400-19,920 V
Secondary Voltage: 120-600V

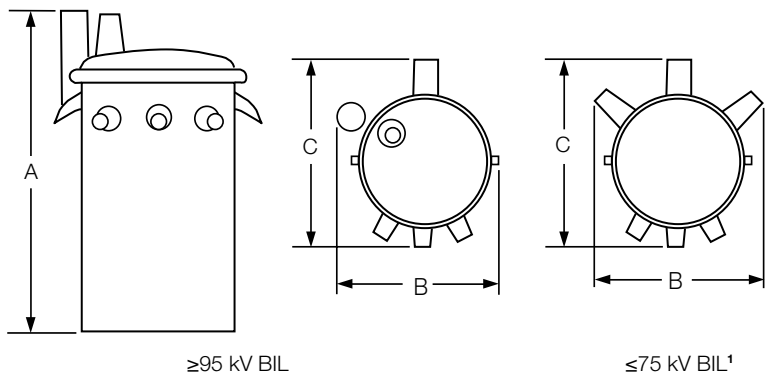


TABLE 2
Typical Dimensions and Weights^{2,3}

kVA	Dimensions (in.)							Approx. Weight (lbs.)
	"A"				"B"		"C" ¹	
	≤75 kV BIL	95 kV BIL	125 kV BIL	150 kV BIL	≤75 kV BIL	≥95 kV BIL		
5	26	36	42	45	28 ¹	17	20	240
10	26	36	42	45	28 ¹	17	20	240
15	30	42	46	49	28 ¹	17	20	300
25	31	44	48	51	30 ¹	20	22	400
37.5	33	46	52	55	31 ¹	20	25	500
50	36	46	52	55	33 ¹	22	26	600
75	39	51	54	57	33 ¹	24	30	900
100 ⁴	40	55	58	61	33 ¹	27	34	1100
167 ⁴	47	55	58	61	35 ¹	35	40	1600

¹ Includes sidewall mount H.V. bushings.

² Includes Radiators

³ Weights, gallons of fluid and dimensions are for reference only, and not for construction. Please contact Cooper Power Systems for exact dimensions.

⁴ MagneX Interrupter Only

PROTECTION OPTIONS

- High fire point Envirotemp FR3 fluid for increased fire safety
- Secondary breaker with weak link for secondary fault and overload protection (5-75 kVA)
- Primary weak link fuse
- Current-limiting fuse for high interrupting ratings and limiting fault currents
- Low-voltage distribution class MOV arrester – internally or externally mounted
- MagneX Interrupter (Primary Breaker) with isolation link
- MagneX Interrupter (Primary Breaker) with partial range current-limiting fuse
- Lightning arresters for primary over-voltage protection: direct connected, normal or heavy duty metal oxide varistor (MOV) either internal (VariSTAR), or external Evolution or VariSTAR with polymer housing.

QUALITY CONTROL

Single-phase overhead-type transformers manufactured by Cooper Power Systems provide outstanding performance. All Cooper transformers pass tests as prescribed by ANSI prior to shipment. Cores and coils are designed for high reliability and low field failure rates. The domed cover design in conjunction with the formed cover band provides increased pressure withstand capability, eliminates bushing overhang and improves cover retention. The high-voltage bushing design improves gasket protection and seal. The low-voltage polymer bushing virtually eliminates ultraviolet deterioration with its captured gasket, compression-limiting design. Transformers are designed and manufactured to be corrosion-resistant. Special attention is given to all welded external parts, to avoid moisture entrapment that can lead to corrosion problems. The recessed bottom design, as well as the stainless steel cover band ends, provide corrosion protection in areas that are more susceptible to coating damage during handling. All coating systems exceed ANSI C57.12.31.

The Quality System at Cooper Power Systems Transformer Products is ISO 9001 certified.

FLUID OPTIONS

Transformers can be filled with Envirotemp FR3 fluid, electrical grade mineral insulating oil or other dielectric coolants manufactured by Cooper Power Systems.

Cooper Power Systems recommends transformers filled with Envirotemp FR3 fluid, a fire resistant, biodegradable, natural ester-based dielectric fluid.

Tests have shown that FR3 fluid extends the life of a transformers insulation paper by five to eight times, compared to traditional mineral oil, resulting in delayed asset replacement and reduced total life cycle costs.

In addition, the soy in FR3 fluid is a net CO₂ absorber over the course of its life cycle, while mineral oil is a net CO₂ emitter. With the extended life properties and CO₂ absorption, making FR3 the dielectric fluid of choice in your transformers can have a favorable effect on greenhouse gas emissions, relative to mineral oil.

Please contact Cooper Power Systems for additional information.