

SIEMENS

Ingenuity for life

High efficiency single phase
overhead distribution transformers

[siemens.com/transformers](https://www.siemens.com/transformers)

On the last transformation step from the power station to the consumer, distribution transformers provide the necessary power for systems and buildings.

The overhead distribution transformers are designed to be installed on a pole top, alone for single phase load or in three-phase cluster.



Standard features

Transformers are designed to comply with latest national standard such as CSA C2.1 and CSA C2.2 or IEEE C57 series, as well as individual customer requirement.

- ONAN cooling
- 65°C temperature rise
- 60 Hz
- Single phase
- Aluminum or copper windings
- Amorphous core technology for no-load losses reduction
- Mild steel tank
- HV and LV bushings
- Lifting lugs according to CSA requirements

Standard ratings

- Power kVA: 10; 15; 25; 50; 75; 100; 167 kVA
- High voltage: 2,400 up to 34,500 V GrdY/19,920 V
- HV Insulation class up to 25 kV–150 kV BIL
- Taps: None

Options

- Dual high voltage
- HV voltage taps
- Biodegradable insulation fluid
- E-Coat paint for better withstand against corrosion
- Stainless steel tank and cover
- Internal Fault Detector (IFD)
- Surge arrester installed in factory
- LV hardware installed in factory
- Wildlife protectors on HV bushings

Quality

No wonder why we are #1 in Canada for pole top transformers. When it comes to quality combined with our 60 years experience, we lead the transformer market. Our definition of quality is the combination of expertise, high-grade materials, and qualified employees working together in every operational step. Our quality standards are compiled in quality assurance manuals that are also available to customers and each manufacturing step is accompanied by quality checks. Final testing and acceptance tests are performed on all transformers exclusively in the testing laboratory. We also perform type tests as

per CSA requirements and special tests upon request. Customers are always welcome to join us to be assured firsthand of the excellence of these products.

When it comes to quality assurance, we like to take our service to our customers even further. Prior to the sale, we advise our customers on the parameters that will yield preferred, required, and, possibly, added benefits. Project management and order processing are handled by service-oriented employees on whom our customers can rely. And, of course, our after-sales service is also available to you after the transformer has been delivered.



ISO 9001:2008 certificate

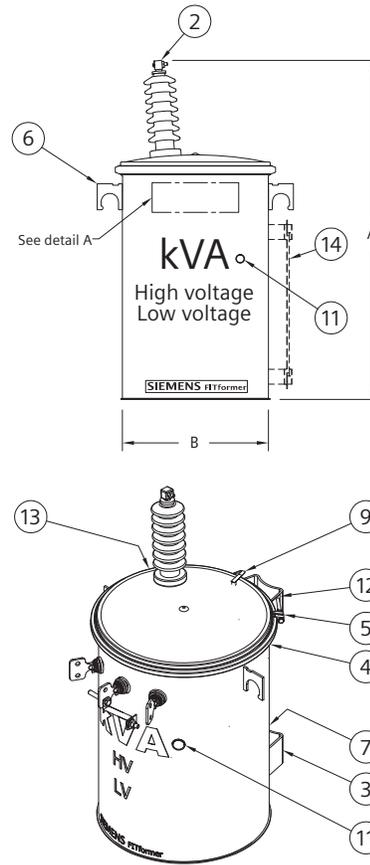


ISO 14001:2004 certificate

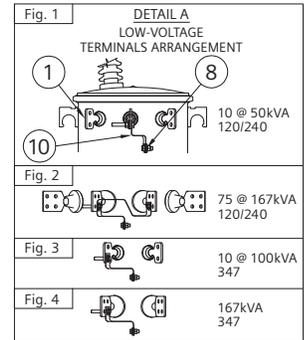
Standard design and dimensions

Transformer design is highly influenced by the total cost of ownership optimization as well as special requirement from customers. This leads to a wide range of dimensions and weights, consequently the below data is given for information purposes only. Moreover, the transformer features presented below are only valid for a basic requirement, without option. For exact information, please contact our team of specialists.

kVA	A (mm)	B (mm)
10	1,040	695
25	1,090	745
50	1,140	795
75	1,215	870
100	1,240	895
167	1,240	895



IT	DESCRIPTIONS
1	Low-voltage terminals
2	High-voltage terminal
3	Mounting brackets
4	Pressure relief valve
5	Cover band
6	Lifting lugs
7	Tank grounding terminal
8	Low-voltage neutral terminal
9	Cover bonding strap
10	Low-voltage grounding strap
11	Non-PCB sticker
12	Nameplate
13	H2 grounding connector
14	Radiators (presence and quantity based on calculation)



Always watching the bottom line

Price is often a key consideration when buying a transformer. Because transformers are capital goods that can pay back their cost in operation over decades, it is recommended that you always weigh acquisition costs against the expected service life and operating costs. Not only losses, but also downtimes, fires, and explosions can quickly turn an ostensibly low-cost transformer into an expensive investment. So these factors should be calculated as part of acquisition and operating costs.

Beside reliability during operation and ability to reach expected lifespan, efficiency has top priority in the calculation and design of our transformers. Ultimately, low losses mean real savings for our customers and also help to protect the environment. We'll be happy to perform a loss calculation based on your specific requirements to help you calculate your transformer options.

Complete calculation procedure can be found in IEEE PC57.12.33/D7, February 1999 or RUS Bulletin 1724E-301; Rev March 4, 2009

You can also get the Siemens app for transformer efficiency calculation.

Usual method to compare transformers is to use the Total Ownership Cost (TOC). This latter can be calculated by the below formula:

$$TOC = P_p + (C_{P0} \times P_0) + (C_{Pk} \times Pk)$$

P_p : purchase price, DAP, in \$

P_0 : no-load losses, also called core or iron losses. Steady value as soon as the transformer is energized

Pk : load losses, also called copper losses. Vary with the transformer load. The value is usually given for full load and a reference temperature.

C_{P0} : Cost of no-load losses. Depends on:

- Cost of energy in \$ per kWh
- Capital investment rate, in %
- System capital investment to supply the losses (Generation, transmission), in \$/ \$

C_{Pk} : Cost of load losses. Depends on:

- Same inputs as C_{P0} but modulated by square of load rate to take into account the variation of losses with load.

<p>Typical values are: Cost of no-load losses: 11 to 20 \$/W Cost of load losses: 1 to 5 \$/W</p>	<p>These values tend to increase with time due to increase of energy costs.</p>	<p>Usual pay-back time by purchasing high efficiency transformer instead of minimum efficiency is in the range of 2.5 to 4 years.</p>
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Subject to change without prior notice.
The information in this document contains general descriptions of the technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.