

# Distribution Transformers

Reference Information

## R210-80-2

### Bolt-on vs. Weld-on Tank Covers

#### At Issue:

Three-phase pad-mounted transformers with bolt-on tank covers provide exceptional value. Cooper's bolt-on cover design withstands the rigors of tank pressure build-up, is tamper-proof per ANSI C57.12.28, domed to repel standing water, and fully removable. The bolt-on tank cover is superior to weld-on types when considering future transformer tank "internal" upgrades. The transformer with bolt-on tank cover can also have greater resale value.

#### Recommendation:

Cooper three-phase transformers rated through 1500 kVA come standard with bolt-on tank covers at no additional charge. With the gasket sealing system, the bolt-on tank cover offers easier maintenance without compromising seal integrity or transformer reliability, and still provides industry-standard tamper resistance.

Specify the bolt-on tank cover with confidence, knowing it exceeds the expectations of the weld-on cover.

#### Rationale:

##### No Tank Contamination During Maintenance

The user is able to remove the tank cover of a Cooper transformer using simple, readily available hand tools. In contrast, the use of an air-arc cutting tool or a grinder is required to remove a weld-on tank cover. Using a grinder or cutting tool can contaminate the dielectric fluid with metal debris, and compromise the integrity of the coil insulation.

##### Full Access to Tank Internals

When the bolt-on tank cover is removed, the user has full access to the entire tank and its internal components. Parts change-outs or product improvements can be done easily, not restricted by a smaller handholes or manholes as used by other manufacturers. Onsite and offsite repairs of any type can be completed at less cost due to having quick and clean access to the tank's interior.

##### Lower Maintenance Cost

The tank cover is reusable, without any deformation of its size or shape when removed from the tank. The cost of removing and re-welding or replacing a weld-on tank cover far exceeds the cost of replacing a gasket (which may not even be necessary) for a bolt-on cover.

#### Greater Residual Value

Resale value of retired transformers is greater. Repair shops have commented that they "like to work on the old RTE/Cooper Power transformers because of the bolt-on tank covers".

#### Other Considerations:

Cooper's bolt-on tank cover has been used for 30 years - meeting all performance issues important to tank integrity.

Acceptance of the bolt-on tank cover allows Cooper to supply its three-phase transformer in our shortest lead-time available.

The best possible paint finish at the cover connection area is available with the bolt-on cover. There is no chance of having flakes of primer or paint fall into the insulating fluid from welding the tank cover to the tank.

#### Bolted Cover Limited Applications:

For all transformer manufacturers, units rated above 1500 kVA tend to be quite large and have tank covers which are welded in place. The overall size and weight of larger covers make it difficult to align the bolt holes in the tank cover with those in the tank side walls. On larger Cooper transformers, a covered tank opening of sufficient size, i.e., 15.5" x 24.0", is supplied with the weld-on tank cover.

Also, because transformers rated above 1500 kVA are typically loaded more conservatively and protected better than smaller units, refurbishing of larger units occurs less frequently, reducing the need for easy access through the cover.

#### Conclusion:

Specify a tank cover which meets or exceeds the requirements listed in ANSI C57.12.28. Do NOT limit the cover to the weld-on type!

Cooper bolt-on tank covers, available on transformers rated through 1500 kVA, meet or exceed the recommendations listed in ANSI C57.12.28 to ensure the integrity of the seal.



P. O. Box 1640  
Waukesha, WI 53187  
<http://www.cooperpower.com>