



CVT & CC

Capacitor Voltage Transformers
& Coupling Capacitors

INTELLIGENT EVOLUTION



Trench is the recognized world leader in the design and manufacture of Capacitor Voltage Transformers (CVT's) and Coupling Capacitors (CC's). Trench has been manufacturing CVT's since the early 1970's and installations in virtually every country in the world attest to their acceptance and reliability. In order to maintain and enhance technical excellence while retaining commercial competitiveness, product refinements must be ongoing.

Over the past several years, Trench has listened to their customers for critical inputs relating to installation techniques, testing issues, and long term reliability enhancements. A key element in product research must always include the ability to produce a product that is demonstrated to be more reliable, while keeping cost increases to a minimum.

With this in mind, Trench has made several CVT design enhancements that will provide all customers with even higher reliability, coupled with reduced installation times. In addition, component and assembly costs are brought into closer direct control of Trench. This brochure will outline the design modifications and resultant advantages for our CVT and CC customers.

Traditionally Trench CVT's used a nomenclature system that identified the model type and the nominal system voltage, i.e. TEVF 138. In order to differentiate the enhanced design CVT's, the nomenclature will now identify the same model type and the maximum system voltage, i.e. TEVF 145 or TCVT 145.

THE PROVEN POWER.



TRENCH®

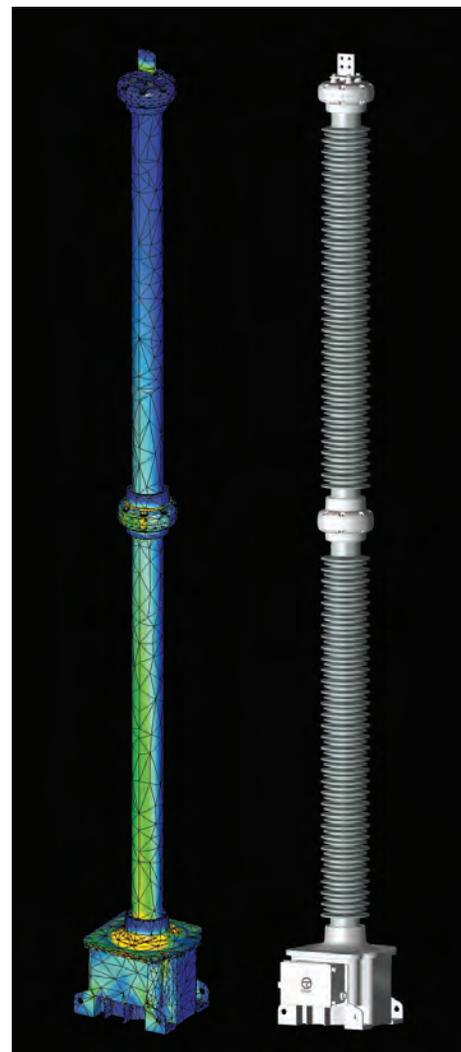
It should be noted that the enhanced design CVT's will be electrically identical to previous CVT's and all main materials used will be the same (same dielectric materials and configuration; no changes in dielectric fluids, paper and polypropylene film). The new CVT's will mount into the same locations as they will use identical mounting hole arrangements. Note that there are minor variances in height and weight when comparing the two models.

Trench efforts were focused on reducing the number of components by integrating multiple individual components into single engineered items, thus reducing the number of components required and thereby increasing reliability. Also, utilizing the internal synergies within the various Trench manufacturing plants and other instrument transformer products, component standardization is used, where possible. These advantageous features include:

- Stainless steel expansion chamber is manufactured with an integrated oil connection to the capacitor stack, thereby eliminating the external hydraulic piping and connections and eliminating the possibility of piping leaks
- Intermediate voltage and carrier/ ground feed through bushings are incorporated into the seal plate as one piece, high strength epoxy casting, thus eliminating the need to solder bushing and connections and minimizing potential leak areas
- Lower porcelain flange is integrated with the base box cover plate, thus eliminating an additional oil seal requirement
- Low voltage terminal board is integrated into the oil to air feed through bushing, thereby eliminating an additional set of connections to a separate terminal board
- CVT's up to 245kV are manufactured with a one piece capacitor section (one porcelain), resulting in no need to assemble CVT porcelain sections on site. (245kV models with 2 sections are also available, wherever applicable, for easy packaging and shipping)
- Integrated single piece aluminum top castings simplify and reduce field time to assemble multi-section CVT's and CC's
- Base box oil fill plug has a revised raised boss to minimize chance of moisture and contamination ingress
- Electrical inter-connection between multi-section units is made via mating castings (rather than using a separate insulated wire), thus simplifying the installation.

All Trench CVT designs traditionally offer a wide range of capacitance values, various burden and accuracy configurations and choices of porcelain and composite insulator housings.

Please refer to the specific brochure for further technical information including electrical ratings and dimensional data.



Finite Element Analysis (FEA) for 550kV CVT