POWER VOLTAGE
TRANSFORMERS
Trench is a recognized world leader in the design and manufacture of high voltage equipment for application on electric utility and high energy industrial systems.

Instrument Transformers are used to convert high transmission line voltages to standardized low and easily measurable values, which will be used for metering, protection and control of the high voltage system. As such, the need for accurate and reliable voltage and current transformation is essential.

The reliability and security of Trench instrument transformers is based on over 50 years of innovation with units operating under a wide range of environmental conditions.

Instrument transformers also ensure suitable electrical insulation between high voltage and low voltage measuring equipment.
## General

Trench Power Voltage Transformers combine the attributes of an inductive voltage transformer with the application of a power transformer.

**Typical applications:**
- Auxiliary power supply for substations
- Electrification of remote areas
- Power supply during substation construction works

Trench PVT portfolio includes both SF6 and oil insulated power voltage transformers up to 550 kV. Additionally, clean air insulation is also under development up to 550 kV.

Maximum continuous output power in single phase operation 167 kVA, therefore the maximum power performance in three phase operation is up to 500 kVA

Standard output voltages on secondary side 120V or 240V. Different voltages available on request.

Available according relevant IEC and IEEE Standards and specific customer requirements.

## Product Design

- Single phase design with the possibility to couple three single devices in case of three-phase systems.
- SF6 gas or oil internal insulation
- External insulation with porcelain or composite insulator
- Equipped with two identical secondary winding groups switchable in parallel and series connection. Thus, the output power can be evenly split to each group, avoiding compensation currents.
- Temperature range from -50°C up to 40°C; dedicated features for larger ranges can be designed

**Special features:**
- Available to withstand heavy seismic solicitations according to IEEE 693 and specific customers’ requests (i.e. Chile ETG A.0.20)
- Overladed capability – cycle operation
- Cable discharge capability

## Product process

- Optimized design to manufacturing
- Lean manufacturing concept applied to the whole supply chain
- Optimized design allows the use of reduced numbers of components and quick customization to all customer specific requirements
- Maintenance free during a long lifetime of more than 30 years

Trench Management System has been certified according to ISO 9001, ISO 14001 and OHSAS 18001 standards.
PRODUCT STRUCTURE

OIL INSULATED TPVT

- Aluminum Cover
- Oil Level Indicator
- Oil Bellows
- HV Terminal
- Composite/Porcelain Insulator
- Graded Bushing
- Base tank
- Low Voltage Terminals Box
- Iron core
- Low Voltage Winding
- High Voltage Winding
- Oil Drain Valve
- Fixing Holes

SF6 INSULATED PVT

- Rapture disc
- HV Terminal
- Composite Insulator
- Graded Bushing
- Base Tank
- Iron Core
- Low Voltage Winding
- High Voltage terminal Box
- SF6 Filling Valve
- Low Voltage Box
- Fixing Holes
## ELECTRICAL and MECHANICAL DATA

### SF6 INSULATED TPVT

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest voltage for equipment (kV)</th>
<th>Rated power-frequency withstand voltage (kV)</th>
<th>Rated lightning impulse withstand voltage (kV)</th>
<th>Rated switching withstand voltage (kV)</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>Total Weight (kg)</th>
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<tr>
<td>PVT 72</td>
<td>72</td>
<td>140</td>
<td>325</td>
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<td>2400</td>
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<td>3000</td>
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Data is indicative and not binding. Dimensions are referred to typical Power Voltage Transformers equipped with composite insulator & according to IEC 61869 Standards – other options are available.

The regular improvement of designs may cause discrepancies between this document and an updated product.

On request, our sales team will be glad to submit you a firm, updated technical and commercial offer fully customized to your specific requests.

### OIL INSULATED TPVT

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest voltage for equipment (kV)</th>
<th>Rated power-frequency withstand voltage (kV)</th>
<th>Rated lightning impulse withstand voltage (kV)</th>
<th>Rated switching withstand voltage (kV)</th>
<th>Arc distance (mm)</th>
<th>Minimum nominal specific creepage distance (mm/kV)</th>
<th>Minimum nominal specific creepage distance (mm/kV)</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>C (mm)</th>
<th>D (mm)</th>
<th>Total Weight (kg)</th>
<th>Oil Weight (kg)</th>
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Data is indicative and not binding. Dimensions are referred to typical Power Voltage Transformers equipped with porcelain insulator & according to IEC 61869 Standards – other options are available.

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