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.
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### Main Features

<table>
<thead>
<tr>
<th>General</th>
<th>Product Design</th>
<th>Product Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trench Power Voltage Transformers combine the attributes of an inductive voltage transformer with the application of a power transformer.</td>
<td>Single phase design with the possibility to couple three single devices in case of three-phase systems.</td>
<td>Optimized design to manufacturing</td>
</tr>
<tr>
<td>Typical applications:  - Auxiliary power supply for substations  - Electrification of remote areas  - Power supply during substation construction works</td>
<td>Clean Air, Oil or SF6 internal insulation</td>
<td>Lean manufacturing concept applied to the whole supply chain</td>
</tr>
<tr>
<td>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.</td>
<td>External insulation with porcelain or composite insulator</td>
<td>Optimized design allows the use of reduced numbers of components and quick customization to all customer specific requirements</td>
</tr>
<tr>
<td>Maximum continuous output power in single phase operation 167 kVA, therefore the maximum power performance in three phase operation is up to 500 kVA</td>
<td>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.</td>
<td>Maintenance free during a long lifetime of more than 30 years</td>
</tr>
<tr>
<td>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.</td>
<td>Temperature range from -50°C up to 40°C; dedicated features for larger ranges can be designed</td>
<td>Trench Management System has been certified according to ISO 9001, ISO 14001 and OHSAS 18001 standards</td>
</tr>
</tbody>
</table>

Thousands of transformers are installed and in service for more than 50 years all over the world in every environmental condition – the best guarantee for the quality and reliability of our products.
ELECTRICAL and MECHANICAL DATA

PRODUCT STRUCTURE

PVT 72
PVT 123
PVT 145
PVT 170
PVT 245
PVT 362
PVT 420
PVT 550

72
123
145
170
245
362
420
550

Type
Rated lightning impulse withstand voltage
Rated power-frequency withstand voltage
Highest voltage for equipment Um

kV (r.m.s.)

kV (r.m.s.) (peak)

kV (peak)

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.

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.

GAS INSULATED TPVT

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

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

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ELECTRICAL and MECHANICAL DATA

GAS INSULATED TPVT

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest voltage for equipment use</th>
<th>Rated power frequency withstand voltage</th>
<th>Rated lightning impulse withstand voltage</th>
<th>Rated switching withstand voltage</th>
<th>A</th>
<th>B</th>
<th>ØD</th>
<th>Total Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(r.m.s.)</td>
<td>(kV)</td>
<td>(kV)</td>
<td>(kV)</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>kg</td>
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<tr>
<td>PVT 72</td>
<td>72</td>
<td>140</td>
<td>325</td>
<td>-</td>
<td>25</td>
<td>50</td>
<td>100</td>
<td>125 167</td>
</tr>
<tr>
<td>PVT 123</td>
<td>123</td>
<td>230</td>
<td>550</td>
<td>-</td>
<td>275</td>
<td>320</td>
<td>3350</td>
<td>3300 3800</td>
</tr>
<tr>
<td>PVT 145</td>
<td>145</td>
<td>275</td>
<td>650</td>
<td>-</td>
<td>275</td>
<td>320</td>
<td>3350</td>
<td>3300 3800</td>
</tr>
<tr>
<td>PVT 170</td>
<td>170</td>
<td>325</td>
<td>750</td>
<td>-</td>
<td>3700</td>
<td>4150</td>
<td>4350</td>
<td>4600 4800</td>
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<tr>
<td>PVT 245</td>
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<td>460</td>
<td>1050</td>
<td>-</td>
<td>3800</td>
<td>4250</td>
<td>4400</td>
<td>4650 4850</td>
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<tr>
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<td>362</td>
<td>510</td>
<td>1175</td>
<td>-</td>
<td>4200</td>
<td>4650</td>
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<td>5050 5250</td>
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<tr>
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<td>420</td>
<td>630</td>
<td>1425</td>
<td>1050</td>
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<td>5250</td>
<td>5500 5700</td>
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<td>PVT 550</td>
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<td>680</td>
<td>1550</td>
<td>1175</td>
<td>5800</td>
<td>-</td>
<td>6200</td>
<td>6400</td>
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OIL INSULATED TPVT

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest voltage for equipment use</th>
<th>Rated power frequency withstand voltage</th>
<th>Rated lightning impulse withstand voltage</th>
<th>Rated switching withstand voltage</th>
<th>kV (r.m.s.)</th>
<th>kV (peak)</th>
<th>kV (r.m.s.)</th>
<th>kV (peak)</th>
<th>A</th>
<th>B</th>
<th>ØD</th>
<th>Total Weight</th>
<th>Oil Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(r.m.s.)</td>
<td>(kV)</td>
<td>(kV)</td>
<td>(kV)</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>KG</td>
<td>KG</td>
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<td>TPVT 123-100</td>
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<td>1005</td>
<td>3150</td>
<td>3906</td>
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<td>1080</td>
<td>1353</td>
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<td>1107</td>
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<tr>
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<td>275</td>
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<td>1205</td>
<td>3750</td>
<td>4650</td>
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<td>1080</td>
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</table>

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