

**TRANSMISSION
ELECTRICAL SUBSTATION
RELIABLE METERING
SPECIAL PROTECTION
DIFFERENTIAL PROTECTION**



growth through

innovation...



Electrical Controls & Systems
Unit - 4 (HV Division)

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Product Range

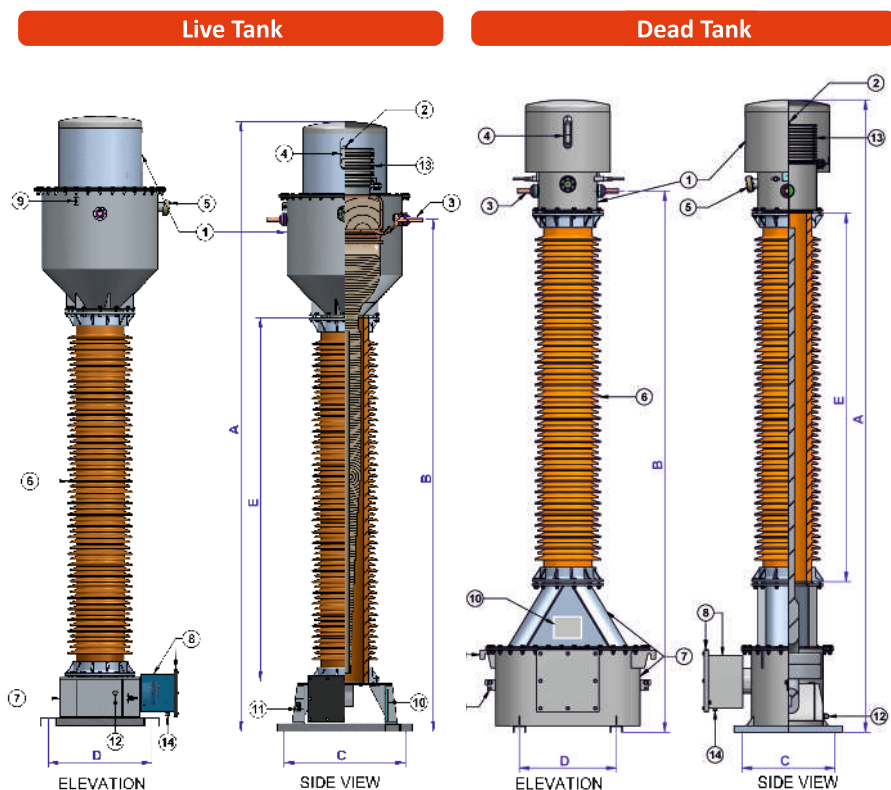
Current Transformer : 66kV / 132kV / 220kV (Live Tank and Dead Tank Type)
Potential Transformer : 66kV / 132kV / 220kV

Design & Structure

- Optimized Design for Manufacturing
- Lean manufacturing concept applied to the whole supply chain
- External insulation with porcelain or composite insulator
- Optimized drying and soaking oil process easily allow the use of special oil in case of specific customer's needs
- External parts made by aluminum or stainless materials
- Maintenance free during a long lifetime of more than 30 years
- It can be transported and stored horizontally or vertically

Current Transformer up to 220kV

Sr.no	Sections
1	Top chamber dome made with MS/AL
2	Bellow plug made with brass
3	Cu tinned primary terminal
4	Toughened glass on bellow indicator
5	MS/AL oil level indicator
6	Porcelain insulator
7	Bottom tank with MS (HDG)/PU paint
8	Sec. Terminal box with MS (HDG)/PU paint
9	Lifting hooks MS (HDG)/PU painted
10	AL rating & connection diagram plate
11	Earthing pad MS (HDG)/PU painted
12	MS drain plug
13	SS Bellow
14	Brass cable gland



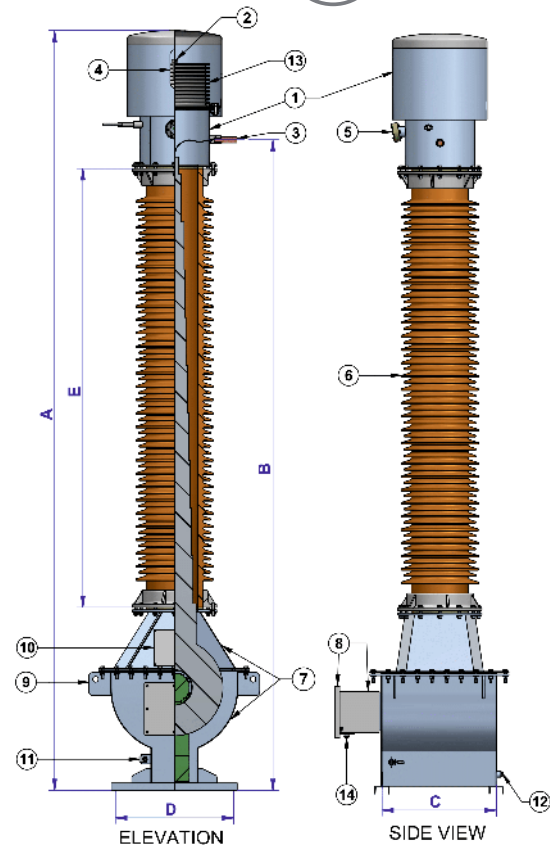
Approximate Weight and Dimensions

Voltage Class	Weight of Current Transformer				Dimension of Current Transformers				
	Dead Tank		Live Tank						
	Transformer Weight in kg.	Oil Contains in Ltr.	Transformer Weight in kg.	Oil Contains in Ltr.	A	B	C	D	E
245 kV	850	210	950	180	3945	3380	600	600	2350
145 kV	580	170	550	140	2950	2535	600	600	1450
72.5 kV	220	50	310	60	1845	1505	450	450	820

Note: Weight and Dimension may vary as per customer's requirement.

Potential Transformer Up to 220kV

Sr.no	Sections
1	Top chamber dome made with MS/AL
2	Bellow plug made with brass
3	Cu tinned primary terminal
4	Toughened glass on bellow indicator
5	MS/AL oil level indicator
6	Porcelain insulator
7	Bottom tank with MS (HDG)/PU paint
8	Sec. Terminal box with MS (HDG)/PU paint
9	Lifting hooks MS (HDG)/PU painted
10	AL rating & connection diagram plate
11	Earthing pad MS (HDG)/PU painted
12	MS drain plug
13	SS Bellow
14	Brass cable gland



Approximate Weight and Dimensions

Voltage Class	Weight of Potential Transformer		Dimensions of Potential Transformer				
	Transformer Weight in kg.	Oil Contains in Ltr.	A	B	C	D	E
245 kV	1000	220	2975	3410	600	600	2350
145 kV	585	140	2675	2195	600	600	1450
72.5 kV	260	55	1820	1480	450	450	820

Note: Weight and Dimension may vary as per customer's requirement.

Features

- Rated Primary Current up to 3000A
- Rated secondary current of 1A OR 5A
- Primary and/or secondary reconnection available. Rated thermal dynamic current capacity up to 100kA peak
- Tangent delta (DDF) < 0.003
- Excellent response under extreme weather conditions
- Protection for the secondary windings in the terminal block (IP 55 Type Tested)
- High quality paper-oil insulation
- Primary ratio can be changed by secondary taps
- 0.3g seismic withstand level
- Compliance with IEC, ANSI/IEEE or equivalent standard
- Optimum capacitance grading by High Dielectric strength of insulating paper
- Metal parts treated for corrosion resistance by PU paint and Hot Dipped Galvanizing Process

Technology

- **Primary winding:** Rigid, concentric and distributed uniformly in order to have optimum mechanical endurance against short circuit forces
- **Secondary winding:** uniformly distributed over the circumference of the core to minimises the reactance & achieve high accuracy class.
- **Oil/paper internal insulation:** This is achieved by specially contoured electrodes, uniform insulation around the electrodes and fine potential grading along the Condenser bushing.
- **Optimized drying and soaking oil process :** Oil filled under vacuum in evacuated heating chambers and strictly controlled conditions are fully automatic to avoid human errors. The collected condensate is regularly monitored at each cycle to evaluate the moisture content

Applicable Standards

Current Transformer : IEC 61869 - 1 & 2, IS 16227 - 1 & 2
Potential Transformer : IEC 61869 - 1 & 3, IS 16227 - 1 & 3

Type Test

- Lightning Impulse voltage withstand test on primary terminals
- Temperature rise test
- Short Time Current withstand test
- Radio interference voltage test
- Degree of protection IP55 for secondary terminal box
- Wet Power frequency withstand test

Special Test

- Internal Arc test at 66kV (Composite Insulator)
- Thermal stability test
- Temperature coefficient test
- Chopped impulse voltage withstand test
- Multiple chopped impulse test on primary terminals
- Mechanical load test on primary terminals
- Seismic Test with 0.3 g acceleration, sweep rate 1 oct/min
- Measurement of capacitance and dielectric dissipation factor
- Transmitted overvoltage test

We are equipped with NABL Accredited High Voltage laboratory with 800 kVp Impulse to carry out dielectric routine and type tests.



Electrical Controls & Systems (ECS) Unit –1

MV Instruments Transformer Division

Product— Epoxy Resin Cast CTs & VTs and VDS / VPIS



Electrical Controls & Systems (ECS) Unit –2

Control Coil Division

Product — Hydraulic / Pneumatic / Contractor / CB Coils



Electrical Controls & Systems (ECS) Unit –3

Stamping Division

Product — Strips Toroidal Cores



Electrical Controls & Systems (ECS) Unit –4

HV Division

Product— High Voltage CTs & VTs, CRT and Condenser Bushing (OIP)



Kaizen Switchgear Products (KSP)

100% Export Oriented Unit

Product— Epoxy Resin Cast Components



Baroda Bushings & Insulators LLP (BBI)

Product — Epoxy Resin Cast Bushings & Insulators



Baroda Moulds & Dies (BMD)

Product— Epoxy Resin Cast Bushings, Insulators and Moulded Components



Fibertech Industries (FI)

Product— FRP / SMC / DMC Components