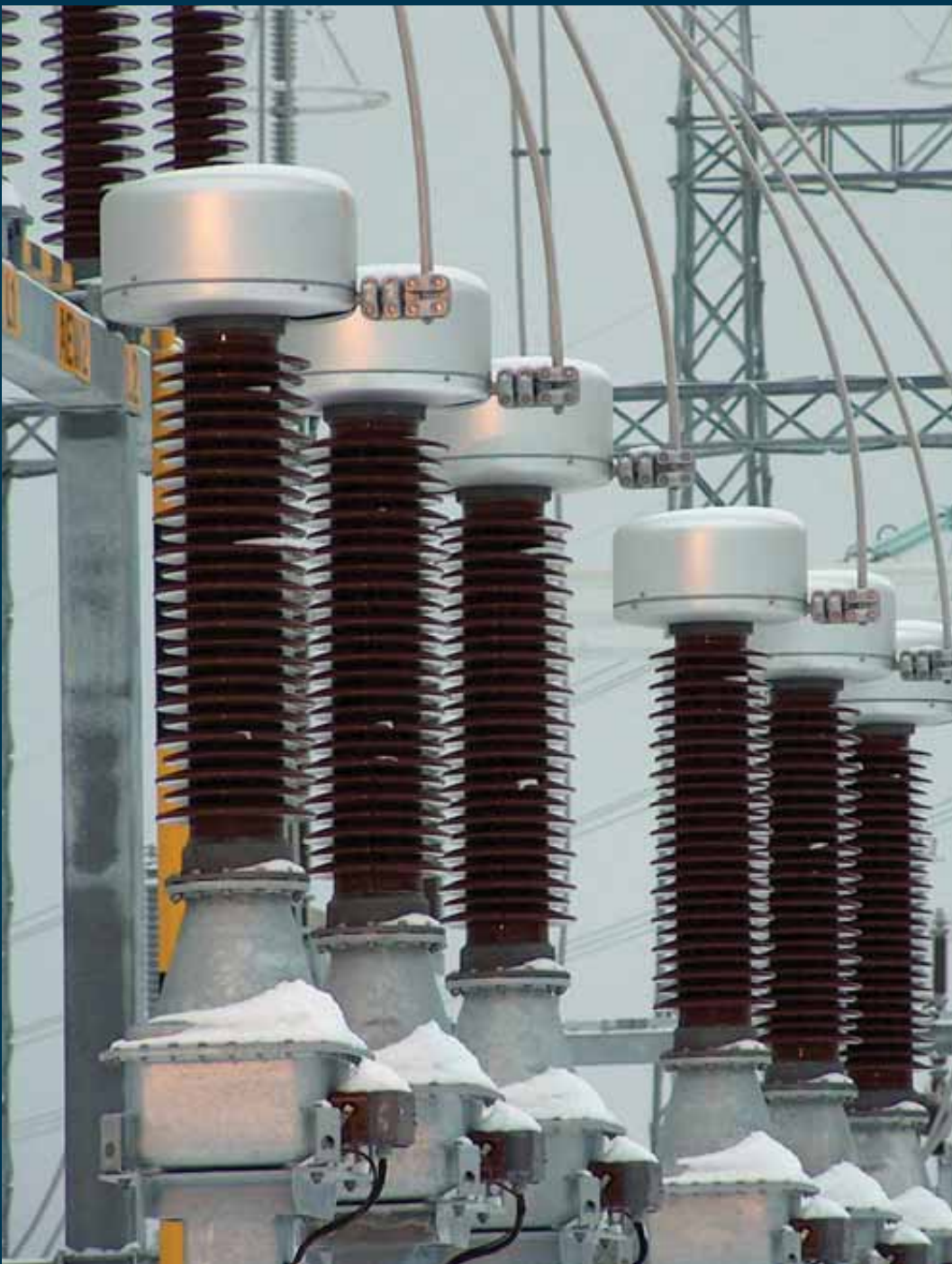


2. INDUCTIVE VOLTAGE TRANSFORMERS

Oil-paper insulation



› 123 kV Inductive voltage transformers. Fingrid (Finland).

2. INDUCTIVE VOLTAGE TRANSFORMERS > Oil-paper insulation

INTRODUCTION

Inductive voltage transformers are designed to provide a scaled down replica of the voltage in the HV line and isolate the measuring instruments, meters, relays, etc., from the high voltage power circuit.



> Model UTF



> Model UTE

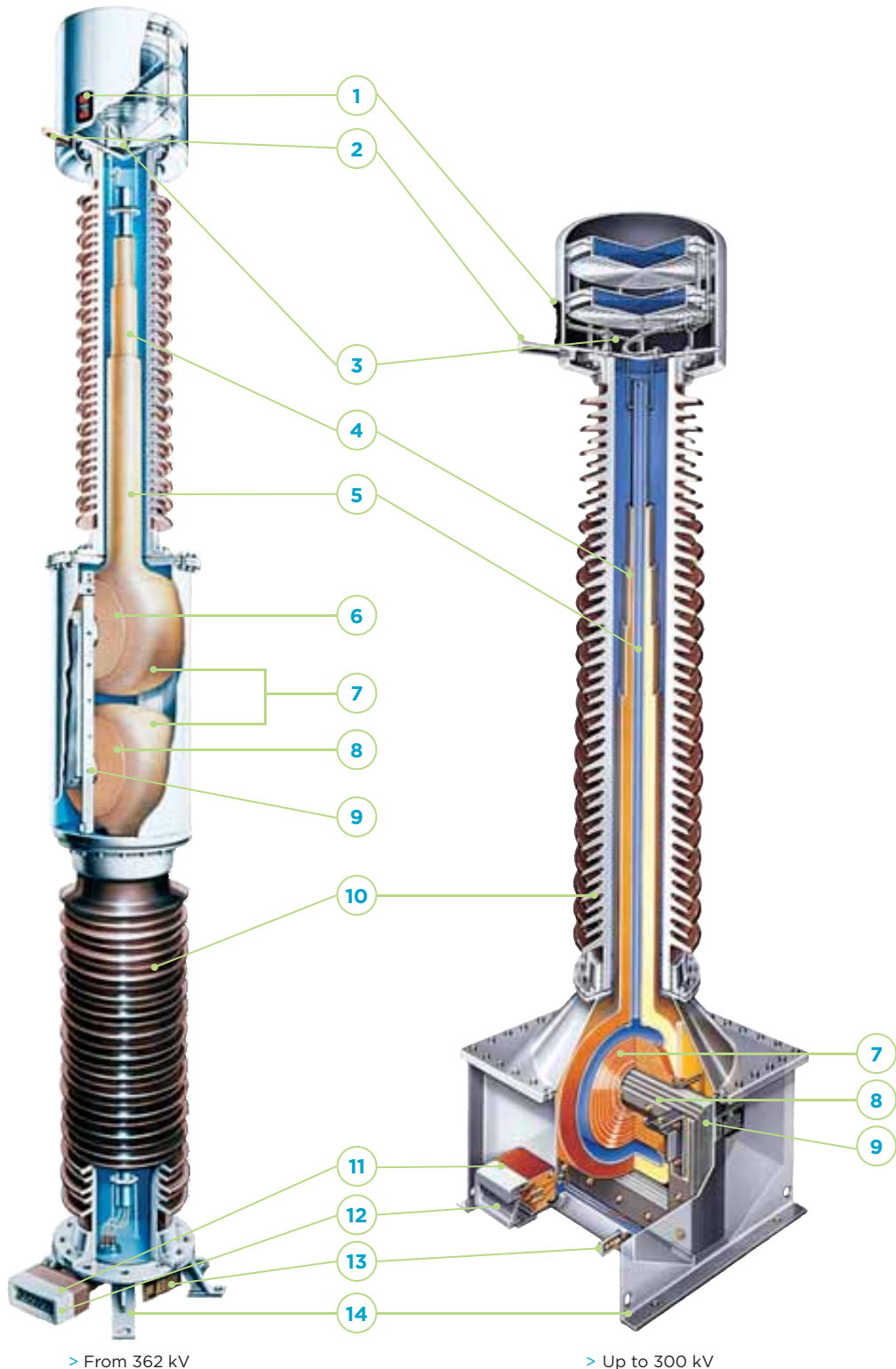


> Model UTD

Model UT up to 550 kV.

SECTIONS

- | | |
|-----------------------------------|--|
| 1. Oil level indicator | 8. Secondary windings |
| 2. Primary terminal | 9. Core |
| 3. Oil volume compensating system | 10. Insulator (porcelain or silicone rubber) |
| 4. Capacitive bushing | 11. Tangent delta measuring tap |
| 5. Oil-paper insulation | 12. Secondary terminal box |
| 6. Compensation windings | 13. Oil sampling valve |
| 7. Primary windings | 14. Earthing terminal |



> From 362 kV

> Up to 300 kV

2. INDUCTIVE VOLTAGE TRANSFORMERS > Oil-paper insulation

APPLICATIONS

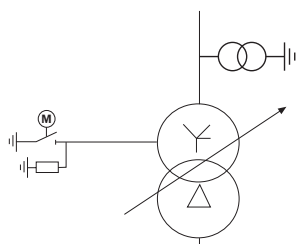
Ideal for installation at metering points due to its very high accuracy class.

Suitable for the discharge of high-voltage lines and capacitor banks.

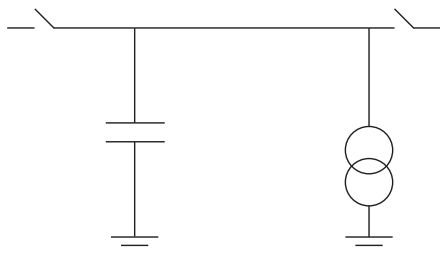
Excellent frequency response; ideal for monitoring power quality and measuring harmonics.

Examples of applications:

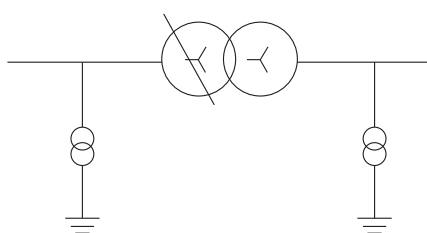
1. Revenue metering.



2. Discharge of capacitor lines and banks.



3. Protection for high voltage lines and substations.



4. Supply for auxiliary services.



1. 123 kV Inductive voltage transformers (Bosnia).



2. 123 kV Inductive voltage transformers. Transpower (New Zealand).



3. 420 kV Inductive voltage transformers. Rede Eléctrica Nacional (Portugal)



4. 245 kV Inductive voltage transformer. Coyote Switch (USA).

DESIGN AND MANUFACTURE

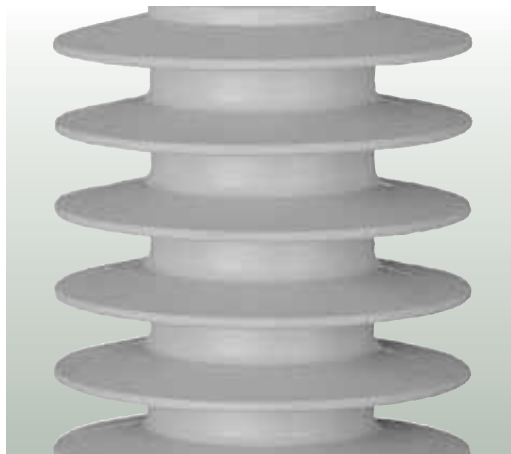
Voltage transformers can have several secondary windings for metering and/or protection. The primary winding and all the secondary windings are wound around the same core, which is loaded with the total burden.

The core and the windings are located inside a metallic tank. The windings have an anti-resonant design, which makes the transformer work properly both at power frequency and during temporary high frequency transients.

ADVANTAGES

- › Very high and invariable accuracy (up to 0,1%) steady for the operation life of the equipment, with maximum reliability.
- › Anti-resonant winding design.
- › Safe design in case of internal fault thanks to:
 - Active parts located inside metallic tank, separated from the insulator.
 - Pressure relief devices.
 - Electrical connections resistant to short circuit.
- › Robust mechanical strength and reduced size due to a compact design that is easy to transport, store and install, and which reduces visual impact.
- › Oil level compensating system that effectively regulates changes in oil volume mainly caused by temperature.
- › Hermetically sealed to guarantee complete water tightness with the minimum volume of oil or gas. (Each unit is tested individually).
- › Oil sampling valve for periodic analysis.
- › Maintenance-free throughout their lifespan.

High and steady accuracy, combined with safe design and maximum reliability.



- › Oil level indicator.
- › Various types of insulators available (silicone, gray porcelain, colored porcelain ...).

2. INDUCTIVE VOLTAGE TRANSFORMERS > Oil-paper insulation

- › Environmental-friendly design through the use of high quality insulating oils free of PCB. The materials used are recyclable and resistant to the elements.
- › Excellent response under extreme weather conditions (from -55°C; up to +55°C), altitudes over 1000 m.a.s.l., seismic hazard areas, violent winds, etc.
- › Each transformer is routine tested for partial discharges, tangent delta (DDF), insulation and accuracy. Designed to withstand all the type test included in the standards.
- › Compliance to any international standards: IEC, IEEE, UNE, BS, VDE, SS, CAN, AS, NBR, JIS, GOST, NF.
- › Officially homologated in-house testing facilities.
- › May be transported and stored horizontally or vertically.

OPTIONS:

- › Wide range of primary and secondary terminals.
- › Silicone rubber insulator.
- › Sealable secondary terminals.
- › Secondary terminal protection devices inside the terminal box.
- › Oil compensation system with metallic bellows. Option for rubber diaphragm up to 170 kV.
- › Current through connection to the HV: line.
- › Vertical primary terminal.

- › 420 kV Inductive voltage transformers. R.E.E. (Spain).



RANGE

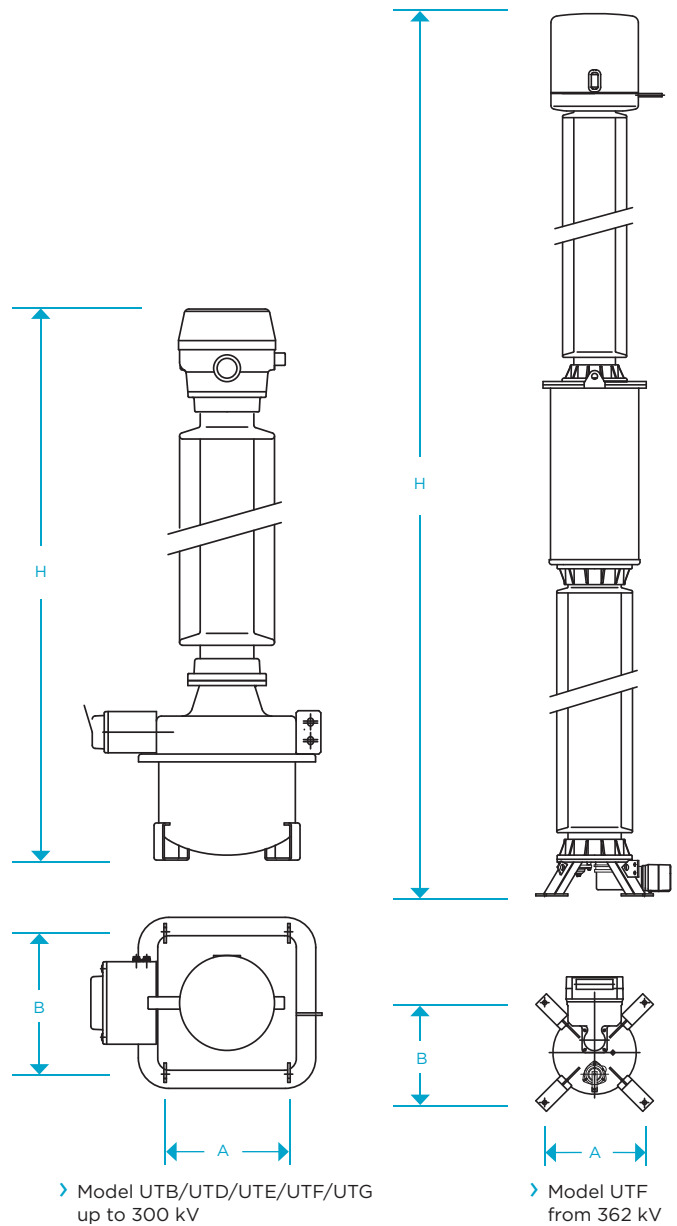
ARTECHE inductive voltage transformers are named with the letters (UT) followed by 1 additional letter and 2 or 3 numbers indicating the maximum voltage of the network for which they are designed.

The table on the next page shows the range of both types of transformers currently manufactured by ARTECHE. These characteristics are merely indicative; ARTECHE can manufacture them to comply with any domestic or international standard.

Standard accuracy classes and burdens:

- › According to IEC standards
 - 100 VA Class 0,2 / 3P
 - 250 VA Class 0,5 / 3P
- › According to IEEE standards
 - 0.3 WXYZ
 - 1.2 WXYZ, ZZ

Higher accuracy classes and burdens available.



- › 123 kV Inductive voltage transformers. Electronet Services (New Zealand).
- › 420 kV Inductive voltage transformers. Elia (Belgium).

2. INDUCTIVE VOLTAGE TRANSFORMERS > Oil-paper insulation

Oil-paper insulation > Model UT									
Model	Highest voltage (kV)	Rated insulation level			Thermal burden (VA)	Standard creepage distance (mm)	Dimensions		Weight (kg)
		Power frequency (kV)	Lightning impulse (BIL) (kVp)	Switching impulse (kVp)			A x B (mm)	H (mm)	
UTB-52	52	95	250	-	1.500	1.300	300x300	1.335	95
UTD-52	52	95	250	-	2.000	1.300	330x300	1.395	150
UTB-72	72,5	140	325	-	1.500	1.825	300x300	1.335	108
UTD-72	72,5	140	325	-	2.000	1.825	330x300	1.395	150
UTE-72	72,5	140	325	-	2.500	1.825	400x430	1.645	285
UTD-100	100	185	450	-	2.000	2.500	330x300	1.690	165
UTD-123	123	230	550	-	3.000	3.075	350x475	2.120	292
UTE-123	123	230	550	-	3.500	3.075	350x475	2.120	355
UTE-145	145	275	650	-	3.500	3.625	350x475	2.105	335
UTE-170	170	325	750	-	3.500	4.250	350x475	2.235	350
UTF-245	245	460	1.050	-	3.500	6.125	450x590	3.210	650
		395	950						
UTG-245	245	460	1.050	-	3.500	6.125	500x640	3.260	800
		395	950						
UTG-300	300	460	1.050	850	3.500	7.500	500x640	3.660	910
UTF-420	420	630	1.425	1.050	3.500	10.500	600x600	5.210	1.315
		575	1.300	950					
UTF-525	550 (525)	680	1.550	1.175	3.500	1.3125	600x600	6.070	1.700

Approximate dimensions and weights. For special requirements, please consult.