

3. COMBINED TRANSFORMERS

Dry insulation



INTRODUCTION

Combined instrument transformers contain a current transformer and a single-pole voltage transformer within the same resin body.

- › KM model transformers with epoxy resin internal insulation and cycloaliphatic resin external insulation. Up to 36 kV.

Model KM up to 36 kV.



› Model KM

APPLICATIONS

Combined transformers for outdoor service are ideal for use at metering points.

They are particularly useful in installations with space or cost limitations.

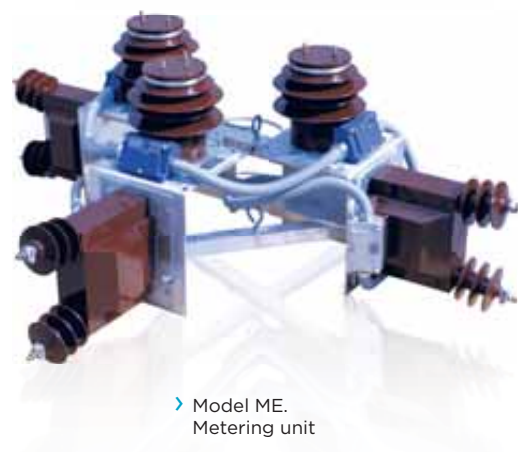
Examples of applications:

ARTECHE offers three-phase metering units for pole mounting.

- › Model MK. Three combined transformers in a single metal structure.
- › Model ME. Three current transformers and three voltage transformers in a single metal structure.



› Model MK.
Metering unit



› Model ME.
Metering unit

DESIGN AND MANUFACTURE

ARTECHE combined transformers with dry insulation are vacuum cast with epoxy resin, which fix and isolates the active parts, creating a rigid body with high mechanical resistance, excellent thermal performance and dielectric withstand capability. They are housed in a cycloaliphatic resin body. This insulator provides for long creepage distance, robust mechanical strength, excellent arc tracking properties and resistance to UV exposure.

ADVANTAGES

- › Variety of designs for greater adaptation to client needs.
 - › Cast in high dielectric strength resin.
 - › Very high and invariable accuracy (up to 0.1%) for the service life of the equipment.
 - › Wide range of primary currents.
 - › Current ratio change by primary or secondary tapping.
 - › Option for double primary ratio.
 - › Compliance with a wide range of creepage distances, depending on customer specifications.
 - › Excellent response under extreme weather conditions such as temperatures of -55°C or +50°C; UV radiation; altitudes over 1000 m.a.s.l., saline or polluted environments, earthquakes, seismic hazard areas, etc
 - › Compact design for easy handling.
 - › Maintenance free. No spare parts needed throughout its lifespan.
 - › May be transported, stored and installed vertically or horizontally.
 - › The materials used for construction are recyclable and resistant to the elements, adhering to environmental regulations.
 - › 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 standard: IEC, IEEE, UNE, BS, VDE, SS, CAN, AS, NBR, JIS, GOST, NF and others.
 - › Officially homologated In-house testing facilities.
- › 17.5 kV Metering unit (MK) for revenue metering. CFE (Mexico).



RANGE

ARTECHE combined transformers with dry insulation are named using three letters and two numbers, which indicate their maximum service voltage.

The first two letters indicate the transformer's type and the third letter indicates the model within the product line.

Current ratios: all types of combinations possible in a single device.

Secondary windings for:

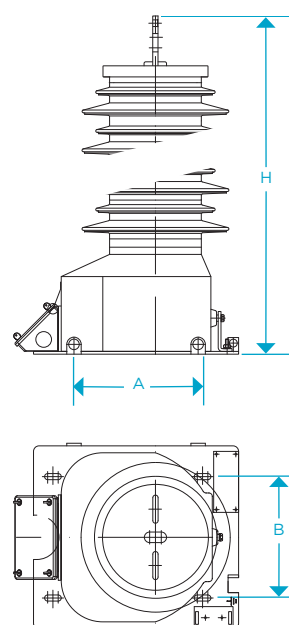
- > Protection: all possible types, including: low induction, linear cores, etc.
- > Metering: accuracy classes for any type of metering and billing (including extra-high accuracy class 0.1/0.15 with extended current range).

Standard accuracy classes and burdens for voltage transformer:

- > 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.

The following tables show the range currently available. These characteristics are merely indicative; ARTECHE can manufacture these transformers to comply with any domestic or international standard.



> Fig. 12 - Model KM

Combined transformers										
Model	Highest voltage (kV)	Rated insulation level		Standard creepage distance (mm)	Thermal burden (VA)	Dimensions				Weight (kg)
		Power frequency (kV)	Lightning impulse (kVp)			Fig.	A (mm)	B (mm)	H (mm)	
Cycloaliphatic resin insulation										
KMB-17	17.5	38	95	577	750	12	219	270	474	60
KMB-24	24	50	125	770	750	12	219	270	582	65
KMF-36	36	70	170	1194	750	12	254	330	638	120

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