



High voltage products

TG COMBI

SF₆ Combined Instrument Transformer

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TG COMBI (Combined Instrument Transformer) is the result of practical experience with SF₆ stand-alone instrument transformers and inductive voltage transformers for PASS and GIS. This SF₆ gas insulated combined current and voltage transformer is built for revenue metering and protection in high voltage networks. It is designed for the most varied conditions, from polar to desert climates. The use of a composite insulator and pressure relief device ensures greater safety and a higher performance in very heavily polluted environments.



Advantages

Thanks to the use of SF₆ gas and of a composite insulator, the TG COMBI, offers several advantages:

- highly reliable equipment
- explosion-proof design
- maintenance free
- dielectric quality not dependent on lengthy treatments
- negligible level of partial discharge
- dielectric means not subjected to ageing
- wide safety margin against saturation and ferro-resonance
- higher performance in very heavily polluted environments

The integration of two functionalities (current transformer and voltage transformer) in one piece of equipment provides additional benefits in terms of:

- cost of the equipment
- quantity of gas
- space required
- dimensions of packaging
- time for erection/commissioning
- cables for interconnection
- foundations and structures

This optimization leads to a general reduction in the price of the equipment and in the costs of transportation/installation with respect to a solution with two dedicated stand-alone pieces of equipment.

Technical features

- Suitable for both metering and protection
- Magnetic cores made of laminated steel with oriented grain and a high level of permeability
- Windings made of electrolytic copper
- Insulation system designed to guarantee a life cycle of 30 years. Declared maximum gas leakage: less than 0.1% per year
- Safety margin for normal wind loads, stress from conductors and seismic forces
- Construction in conformity with national pressure standards

TG COMBI features

Type	TG COMBI
Standard applied	IEC 60044-3
Installation	Outdoor
CT Design	Top core
VT Design	Inductive type
Insulation	SF ₆ gas
Highest voltage for equipment	145-245 kV
Voltage factor (Vf)	Up to 1.9/8 hrs
Insulators	Silicone rubber
Creepage distance	>= 25 mm/kV Longer on request
Ambient temperature	- 60 °C to + 40 °C
Design altitude	Maximum 1000 m

CT features

Model	Toroidal
Type	TG
Standard applied	IEC 60044-1 and 6 or ANSI C57.13-1993 (rev2003)
Number of cores	- 1÷6*
Rated primary current	A 150 – 4000
Rated Overcurrent Factor	1.2**
Rated secondary current	A 1 or 5
Metering Core	
Burden	5÷40 VA – B1÷B2
Class	0.1÷1
Protection Core	
Burden	5÷40 VA – B0.1÷B1.8
Class	5P-10P or TPX-TPY-TPS-TPZ – C200÷C800
Accuracy Limit Factor	10-20-30
Security factor	- < 10

* This is a general indication. The number of cores available in standard cases depends on the primary current and the performance required.

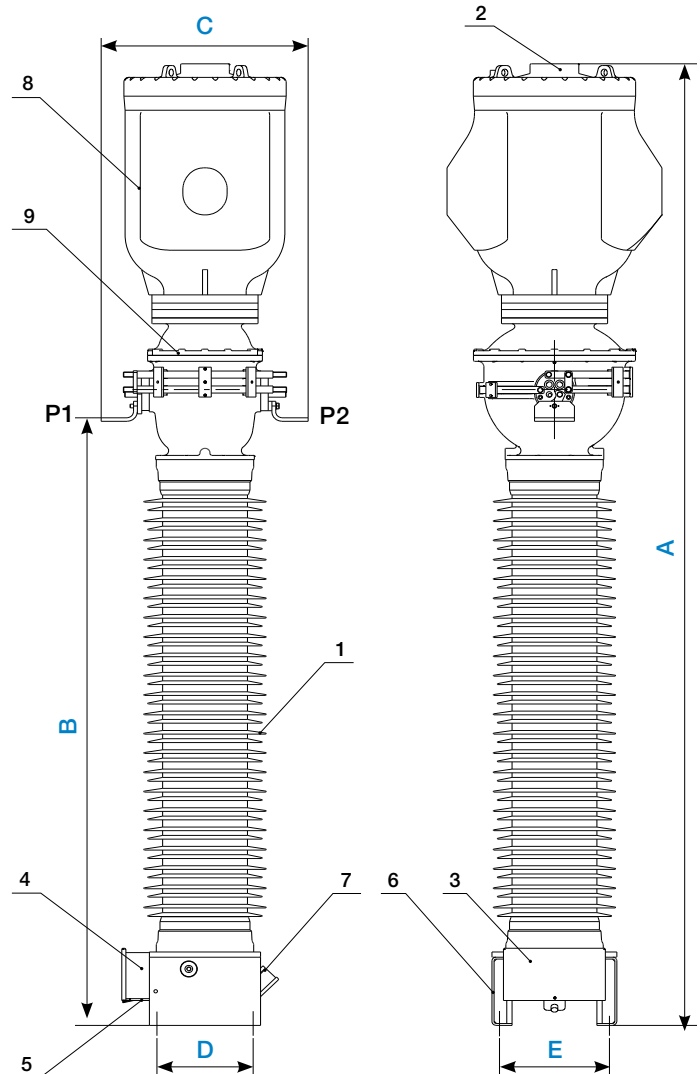
** Higher value on request.

VT features

	kV	145	170	245
Model		SF ₆		
Type		TVI		
Standard applied		IEC 60044-2 or ANSI C57.13-1993 (rev2003)		
Number of cores		- 1÷3*		
Rated primary voltage	kV	$132/\sqrt{3}$	$150/\sqrt{3}$	$220/\sqrt{3}$
Rated secondary voltage	V	100, 115, 120, $100/3$, $115/3$, $120/3$, $100/\sqrt{3}$, $115/\sqrt{3}$, $120/\sqrt{3}$ **		
Metering Core				
Burden	VA	10÷200		
Class		0.2÷1		
Protection Core				
Burden	VA	10÷200		
Class		3P-6P		
Thermal Burden	VA	1000-1500		

* This is a general indication. The number of cores available in standard cases depends on the power required.

** This is a general indication. Other voltage values can be requested.



1. Silicon rubber insulator
2. Rupture disk
3. Nameplate
4. Secondary terminal box
5. Low voltage cable gland

6. Earthing terminal
7. Density monitor
8. Voltage transformer
9. Current transformer

Electrical and mechanical data

Type	Maximum system voltage (kV)	Power frequency (kV)	Impulse Withstand (kV)	Min Flashover Distance (mm)
TG COMBI 145	145	275	650	1184
TG COMBI 170	170	325	750	1364
TG COMBI 245	245	460	1050	1950

Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Weight (Kg)	SF ₆ (Kg)
TG COMBI 145	3254	2000	800	380	380	650	10
TG COMBI 170	3400	2100	800	380	380	700	12
TG COMBI 245	4100	2600	800	345	440	800	16

Contact us

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