

**TRADITION** - MANUFACTURING INSTRUMENT TRANSFORMERS SINCE 1947

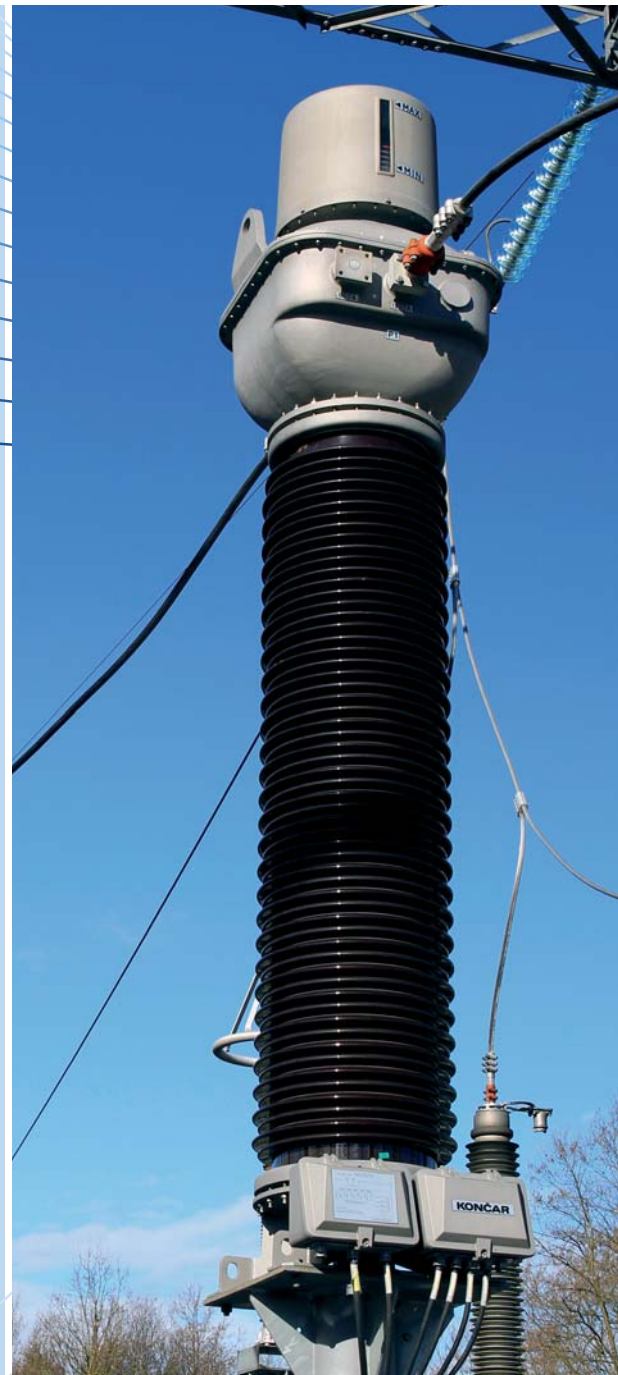
**EXTENSIVE SERVICE EXPERIENCE** - OVER 5.000 CTVT UNITS INSTALLED WORLDWIDE

**INNOVATION** - UNIQUE AND ORIGINAL DESIGN

**FLEXIBLE DESIGN** - READINESS AND WILLINGNESS TO COMPLY WITH CUSTOMER REQUIREMENTS

**LONGEVITY AND RELIABILITY** - DESIGNED FOR AT LEAST 50 YEARS OF SERVICE LIFE

**VAU**  
COMBINED INSTRUMENT  
TRANSFORMERS  
72,5 to 550 kV



**KONČAR**

Končar - Instrument Transformers Inc.



## Application

The combined instrument transformer essentially consists of two measuring units: the inductive voltage transformer and the current transformer.

Combined instrument transformers are used to step-down current and voltage to defined values, and thus provide standardized, useable levels of current and voltage in a variety of power monitoring, measurement and protection applications while insulating the measurement and protection equipment from high system voltage.

## Performance

- Um: 72,5 to 550 kV
- In: up to 6000 A
- Short circuit: up to 100 kA (Idyn: 250 kA peak)
- Secondary cores: up to 10
- Secondary windings: up to 6
- All metering and protection classes

## Main Features

- High quality paper-oil insulation
- Partial discharge free on power-frequency withstand voltage
- High-precision measurement accuracy and protection classes with superior transient response
- Stainless steel bellows oil expansion system
- Sealing for life - every single transformer is vacuum tested with helium
- Nitrogen free
- Standard ambient temperatures from -35 to +40 °C (extreme ranges upon request)
- High quality porcelain or composite (silicone shed) insulator
- Extensive experience in seismically active regions
- Minimum oil design and PCB free - environment friendly
- Non-corrosive hardware
- Maintenance free
- Explosion-safe design
- Space and cost savings

## Current Transformer

- Top core design - ensuring low primary winding losses
- Primary and/or secondary transformation ratio selection
- Low leakage reactance type

## Voltage Transformer

- Unique design with an open type magnetic core - ensuring ferroresonance immunity
- High thermal burden - up to 2500 VA with standard design, higher ratings on demand
- Fault-resistant primary winding design

## Accessories

- Terminal for measuring dielectric dissipation factor ( $\tan\delta$ )
- Oil level indicator
- Fuses or Micro Circuit Breakers (MCB) for secondary winding protection (optional)
- Revenue metering secondary terminals can be separately sealed
- Transport shock indicators (standard for  $U_m \geq 362$  kV, optional for other voltage levels)
- Internal overpressure indicator (optional)

## Quality Assurance

Končar combined instrument transformers are designed in compliance with IEC, ANSI/IEEE, GOST, AS, IS, CAN, or any other relevant standard.

Product quality is assured through a certified quality standard, the ISO 9001, covering all aspects of design, production and testing.

Končar - Instrument transformers Inc. is ISO 14001 and OHSAS 18001 certified, ensuring environmental and occupational health standards are met.

And most importantly, our tireless ambition to satisfy customers has sealed long lasting quality and reliability onto our product.



## Insulator

As per request, the external insulation can be either porcelain or composite. The porcelain insulators are made of highest quality C130 aluminous porcelain, while the composite insulators are composed of a glass-fibre reinforced resin tube and silicone rubber sheds.

The insulator creepage distance is based on ambient air pollution and is to be quoted in the inquiry.

The VAU combined transformer has been seismically tested and meets all of the IEEE Standard 693-2005 requirements.



## Housing

The transformer housing consists of a base, insulator, head and bellows cover.

The current active part is located inside the aluminium cast head which is designed in such a way so as to achieve minimal oil capacity.

During production, before the oil-filling process, a vacuum sealing test is performed on every transformer, ensuring perfect hermetical sealing of the enclosure.

The transformer base is made of high quality steel, which is hot dip galvanized and additionally painted for long-lasting corrosion resistance, or of cast aluminium. The secondary terminal boxes are located on it, along with various other accessories, such as name plate, oil sampling and filling valve, lifting lugs, earthing terminals and an optional oil overpressure indicator.

Earthing terminal size and type are to be defined in the inquiry. The standard connection is screw type (M12 x 35) or a stranded copper conductor clamp.

## Terminals

The primary terminals are made of aluminium or, alternatively, of corrosion protected (tin or silver plated) electrolytic copper. The terminal shape and type are both designed according to the current ratings and applicable standards, unless specified otherwise in the inquiry.

Standard secondary terminals are M8 in size and are of the threaded bolt type. They are made of stainless steel. Other terminal types, materials and dimensions are available on request.

The secondary terminals, along with protective devices and tariff terminal sealing, reside in the secondary terminal boxes. Cable glands or plates provide entry to the box and are designed in accordance with customers needs.

## Dimensions

Type	Maximum System Voltage	Total Height	Terminal Height	Total Weight	Oil Weight	Base Mounting	Minimal Creepage Distance
	kV	mm	mm	kg	kg	mm	mm
VAU-72,5	72,5	2500	1900	500	85	520x520	1815
VAU-123	123	2550	2100	520	85	520x520	3075
VAU-145	145	2700	2200	550	105	520x520	3625
VAU-170	170	3100	2400	660	160	520x520	4250
VAU-245	245	3720	3120	900	220	520x520	6125
VAU-300	300	3900	3300	1100	250	520x520	7500
VAU-362	362	4700	3860	1300	330	520x520	9050
VAU-420	420	5330	4550	1600	400	650x650	10500
VAU-525	550	6150	5170	2500	600	650x650	13750

The given indicative values refer to our standard porcelain versions and vary depending on electrical, mechanical and environmental parameters specified in the customers' inquiry.

The values are susceptible to change in the course of technical developments.

# KONČAR

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