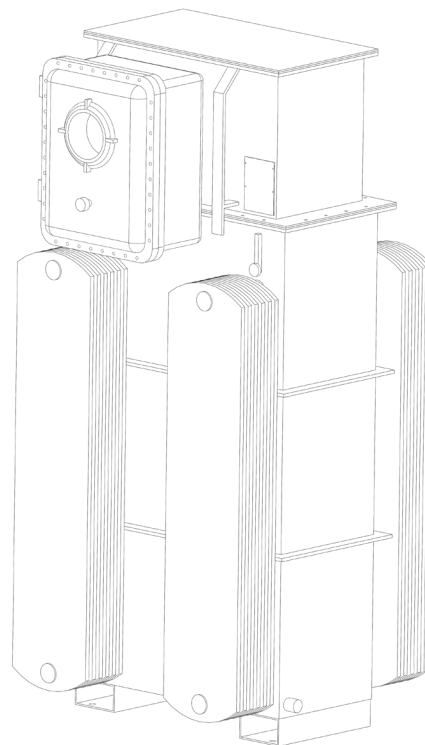


OIL-COOLED TRANSFORMERS/RECTIFIERS

General Arrangement

Zinex's oil-cooled transformer rectifiers utilize a rugged design made of durable, high quality materials that protect them from conditions including high in-rush currents and short circuits. The transformers have isolated primary and secondary windings with an electrostatic shield between them for main voltages above 600VAC. The transformers are liquid immersed and are cooled via O.N.A.N. and F.A.C. The transformer insulation is class H (220°C) with a maximum design temperature rise of 95°C. The transformer windings are comprised of an electrolytically pure, splice-free copper wound to keep dimensions to an optimum and to maintain the impedance of the unit for maximum efficiency. The cores are made from M4 low-loss silicone transformer steel with a flux density of less than 1.7 Tesla. The core dimensions are designed to meet all specifications necessary for liquid immersed transformers, and meets the latest ANSI standards for voltage class. Each transformer is pot tested to 5000V AC/DC for 1 minute.



Technical Characteristics Built To:

Standards built to meet		IEEE/IECEX/ATEX North American Standards
Product Ranges not limited to		CLASS 1, Division 1 & 2, Groups A, B, C, D, Zone 1 & 2, GAS Groups IIC,IIB+H2, IIB, IIA.
Three-phase supply voltage mains by customer	Vac	up to 22,000
DC Voltage	Vdc	up 3,000
DC Current	Adc	up to 30,000
Maximum power	kVA	5,000
Frequency	Hz	50/60
Tap changer		No Load
Rectifier Connection		Full Bridge, Half Bridge
Pulses		6 / 12
Rectifier power section material		Copper
Control card type		Digital or Analog
Metering		Shunt 0-50 mV, 4-20 mA
Rectifying elements		Thyristors / Diodes
Temp class		T3, T4, T5
Transformer Cooling		O.N.A.N. / FAC
Transformer Insulation		H-Type.
Transformer Oil Type		Mineral
Installation		Indoor or outdoor
Transformer Manufacturer		Zinex
Rectifier Manufacturer		Zinex
Line Up Testing Available		Combined Test at Zinex Factory

**OIL-COOLED
TRANSFORMERS/RECTIFIERS****Meters**

The unit is fitted with a V-570 Touch Screen PLC which uses voltage and current feedback for quick and precise control.

Control

The rectifier can operate in either manual or one of the provided remote control modes. In manual operation, the DC voltage and current is controlled by the set point on the V-570 PLC.

If remote control is desired, the machine can be operated in Remote Run, Remote Set or Remote Run/Set mode.

- Remote Run: The device is started using an external run command.
- Remote Set: The machine's DC voltage and current can be controlled using a 4-20mA control signal. The run command is manually sent from the PLC.
- Remote Run/Set: The machine can be remotely run and its DC voltage and current are controlled using a 4-20mA signal

Tank Enclosure

The tank and is made with 3.175 mm carbon steel with an option for 316 stainless sheet steel. It contains the transformer and rectifier assembly as well as the cooling oil. All external surfaces of the oil tank are protected against corrosive environments and polluted atmospheres.

Control Enclosure

The control enclosure houses the meters, PLC, AC breaker and terminals. It is accessed via a hinged door. All external fittings to the enclosure will be of 316 stainless steel. Contact Zinex for enclosure options.

Cable Entry

The unit is fitted with a gland location at the bottom of the rated enclosure. The AC/DC cables access will come from the J-Box. (See rectifier schematic).

DC Ripple

Less than 5% at full rated output

Accessories

The equipment is supplied complete with the following:

- Oil sight glass / oil temperature gauge
- Pressure release valve
- Silica – gel breather
- Lifting lugs and external earthing terminal
- 316 Stainless Steel Rating Plate
- Operation and maintenance manual with circuit and outline drawings
- Test and inspection reports complete with a certificate of conformity

Standard Factory Testing Procedures

- Rated voltage and current output tests
- Transformer open circuit test
- Oil dielectric tests
- SCR and diode burn-in tests
- High voltage test

Protection

Zinex rectifiers are protected from open and short circuit conditions by means of an over voltage limiting trip circuit. The trip and on-board metering circuits must be annually serviced and calibrated to ensure their proper function. The equipment is provided with the following devices for protection against over voltage and over current conditions.

- Primary 3 Pole Breaker (Optional Cost Adder.)
- Transient over voltage surge suppression on AC and DC sides of rectifier
- Electronic Voltage Limiter
- Electronic Current Limiter
- Over Temp
- Loss of Phase