

Definitions

Transformer:

A transformer is an apparatus with two or more windings which transforms an alternating voltage and current into another alternating voltage and current with the same frequency by means of electromagnetic induction. Its purpose is to transmit electrical energy.

Autotransformer:

A transformer with a common winding in which primary and secondary are not galvanically/electrically separated.

Separating transformer:

A separating transformer is a transformer in which the primary and secondary windings are galvanically/electrically separated with basic insulation.

Isolating transformer:

A separating transformer with a protective partition between the primary and secondary windings.

Safety isolating transformer:

A safety transformer is a separating transformer which is designed to supply an SELV or PELV circuit.

Instrument transformers:

Instrument transformers are intended to transform high currents or high voltages to available values for standard electrical measuring instruments and electrical protective devices.

SELV: [safety extra-low voltage]

A voltage which does not exceed 50 VAC or 120 V ripple-free DC between conductors or between each conductor and earth in a circuit which is isolated from the line voltage by a safety transformer. - "Ripple-free" normally means a RMS ripple voltage with not more than 10% of the DC component.

SELV circuit:

An extra-low voltage circuit with a protective partition from other circuits which does not have or require anything in the way of earth connection.

PELV circuit:

An extra-low voltage circuit with a protective partition from other circuits which must have an earth connection for functional reasons.

FELV circuit:

An extra-low voltage circuit which does not meet SELV or PELV requirements for functional reasons.

Class I transformer

A class I transformer is a transformer which protects against electric shock not only by means of basic insulation, but also by using an extra safety device such as an earthing terminal, i.e. in the event of a fault in the basic insulation, the exposed parts will not become dangerously live.

Class II transformer

A class II transformer is a transformer which protects against electric shock, not only by means of basic insulation but also using an extra safety device such as double or reinforced insulation. The transformer does not have to be equipped with a protective earth connection.

Class III transformer

A class III transformer is a transformer which protects against electric shock by means of a SELV power supply, with no voltages higher than SELV being generated (max. 50 VAC in and max. 50 VAC out).
 - The transformer does not have to be equipped with a protective earth connection.
 - Classification I, II or III has nothing to do with the insulation between the primary and secondary windings.

Transformer rating

Every transformer must have a plate showing its rated values, the rating plate. The rated values indicate what outputs the transformer is designed for and also represent reference values for the manufacturer's warranties. The basic principle is that the transformer should be rated as if it were ideal, with account not normally being taken of no-load current and voltage drops in the transformer, apart from in the case of lower powers.

3 PHASE TRANSFORMER

TYPE: 3LT100-230/400-dYN11-23				ART.NO.: 3-040-701000			
FREQUENCY: 47 - 63 Hz				IP: 23 BUILD: 2001			
INPUT / PRI				OUTPUT / SEC			
CONN.	VOLT	AMP.	COUPL.	CONN.	VOLT	AMP.	COUPL.
1U-1V-1W	230	257	d,	2U-2V-2W	400	144.3	YN11
2U-2V-2W	400	147.8	YN,	1U-1V-1W	230	250	d1
kVA: 100		ez%: 3.52		er%: 2.29		TOT. WEIGHT: 406 Kg.	
INSUL. CL. F		DUTY: CONT.		COOLING: AN		Ambient temp.: 45°C	
According to: IEC-60726/60076							

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Rating plate on an 100 kVA 230/400V enclosed Noratel transformer.