

Basic Impulse Level (BIL) – the ability of the transformer to withstand impulse voltages impressed upon it by switching surges or lightning.

Buck-Boost Transformer – small single phase transformers designed to reduce (buck) or raise (boost) line voltage from 5-20%.

Corona – the ionization of air surrounding a high voltage electrode. Corona discharge can reduce transformer life.

CSA (Canadian Standards Association) – an independent testing agency that certifies products to its established standards of safety and performance.

Eddy Currents – currents flowing in a conducting material in the presence of a time varying magnetic field. These currents are in addition to the current drawn by the load.

Eddy Current Losses – power dissipated due to eddy currents. Includes eddy current losses in the core, windings, case and associated hardware of a transformer.

Exciting Current – the current or amperes for excitation. The exciting current is made up of two components, one of which is a real component and is in the form of losses or referred to as no load watts; the other is in the form of reactive power and is referred to as kVAR.

Harmonic – a sinusoidal waveform with a frequency that is an integral multiple of the fundamental 60 Hz frequency.

Harmonic Distortion – non-linear distortion of a system characterized by the appearance in the output of harmonic currents (voltages) when the input is sinusoidal.

Harmonic Spectrum “K” Factor – the sum of the product of each harmonic current squared and that harmonic number squared for all harmonics from the fundamental (60 Hz) to the highest harmonic of any measurable consequence.

Hazardous (Classified) Locations – Those areas, which may contain hazardous (classified) materials in sufficient quantity to create an explosion. See Article 500 of The National Electrical Code.

Impedance – the current limiting characteristics of a transformer; expressed in percentage.

Indoor Locations – Those areas protected from exposure to the weather.

K1 – K-factor used for loads: resistance heating, incandescent lighting, motors, transformers, control/distribution.

K4 – K-factor used for loads: welders, induction heaters, HD lighting, fluorescent lighting, solid state controls.

K-13 – K-factor used for loads: telecommunications equipment, brand circuits in classrooms and health care facilities.

K-20 – K-factor used for loads: main frame computers, variable speed drives, branch circuits with exclusive loads of data processing equipment, desktop computers.

Linear Loads – loads where the current waveform conforms to the waveform of the applied voltage. Or loads where a change in current is directly proportional to a change in applied voltage.

NEMA (National Electrical Manufacturers Association) – a US Manufacturers Organization which actively promotes standardized product specifications for electrical apparatus. While NEMA does not actually test products, it establishes the performance criteria for enclosures intended for specific environments.

Non-linear Currents/Voltages – a waveform of current or voltage which cannot be expressed as the sine of a linear function of time. A non-linear load would result in a non-sinusoidal current or voltage.

Non-linear Loads – loads where the current waveform does not conform to the waveform of the applied voltage. Or loads where a change in current is not proportional to a change in applied voltage.

Non-Ventilated – Constructed to provide no intentional circulation of external air through the enclosure.

Outdoor Locations – Those areas exposed to the weather.

Polarity – the instantaneous voltage obtained from the primary winding in relation to the secondary winding. Used only with single phase transformers.

Sinusoidal Current/Voltage – refers to a periodic waveform that can be expressed as the sine of a linear function of time.

Stray Losses – a term used to express the difference between the measured alternating current losses on a transformer and the direct current (DC) losses (I^2R). Stray losses include eddy losses. Usually expressed as a percent of the direct current losses.

Taps – provided on some transformers on the high voltage winding to correct for high or low voltage conditions, and still deliver full rated output voltages at the secondary terminals.

Temperature Rise – the temperature of the windings and insulation above the existing ambient of surrounding temperature.

Total Harmonic Distortion (THD) – the square root of the sum of the squares of all harmonic currents present in the load excluding the 60 Hz fundamental. It is usually expressed as a percent of the fundamental.

Transformer – an electrical apparatus designed to convert alternating current from one voltage to another. It can be designed to “step up” or “step down” voltages and works on the magnetic induction principle.

Triplen Harmonics – odd multiples of the 3rd harmonic (3rd, 9th, 15th, 21st, etc.)

Type 1 Enclosures – Intended for indoor use, primarily to provide a degree of protection against contact with the enclosed equipment.

Type 2 Enclosures – Intended for indoor use, primarily to provide a degree of protection against limited amounts of falling water and dirt.

Type 3R Enclosures – Intended for outdoor use, primarily to provide a degree of protection against falling rain, sleet and external ice formation.

Type 4X Enclosures – Intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, hose-directed water and external ice formation.

UL (Underwriters Laboratories) – an independent testing agency that test and lists electrical equipment to its established standards of safety and performance.

Voltage Harmonic Distortion (VHD) – distortion caused by harmonic currents flowing through the system impedance. The utility power system has relatively low system impedance, and the VHD is very low. But, VHD on the distribution power system can be significant due to its relatively high system impedance.

Ventilated – Constructed to provide for circulation of external air through the enclosure to remove excess heat, fumes or vapors.

Regulation (Voltage) – the difference between the no load voltage and the full load voltage; expressed in terms of percentage.