VFD inverter neutral point voltage

What is a neutral point clamped 3 level inverter?
Neutral-Point clamped (NPC) three-level inverters have a broad application prospect. However, the voltage imbalance of the capacitors and the drafting of its neutral-point voltage will generate voltage stresses on the switches and even increase the total harmonic distortion (THD) rate in their output.

What causes neutral-point voltage drift in NPC three-level inverters?
The reasons for the neutral-point voltage drift include the difference of dc side capacitance parame- ters, the difference of switching device characteristics and the asymmetry of load. There are mainly two strategies to realize the neutral-point voltage control of NPC three-level inverters.

What is a neutral-point clamped (NPC) voltage-source inverter?
This demonstration illustrates a neutral-point clamped (NPC),three-levelvoltage-source inverter. The NPC topology has been adopted for high power applications as it can achieve better harmonic reduction than traditional two-level voltage source inverters and the associated control strategies help to mini-mize semiconductor losses.

Does neutral point potential imbalance affect the output waveform of inverters?
Existing researches generally believe that the neutral point potential imbalance will increase the voltage stress of the switching device and cause the output waveform of the inverters. The former effect is obvious and unquestionable, but the latter effect is very different for NTVPWM and VSVPWM, as analyzed below.

Abstract Medium voltage drives consist of several topologies. While some of them are seldom found in industrial applicau0002tions, others are very popular and create integral part of the portfolio of most global ...

Common mode voltage Vcm o not mitigated by DC choke or isolation transformer common mode voltage on motor neutral can cause insulation damage over time.

Abstract- The paper describes a new discontinuous carrier based pulse width modulation (PWM) method for use in variable frequency drives (VFD) driven by three-level ...

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Example: Neutral-point clamped inverters (also called "diode clamped" multi-level inverters). Active switches are sometimes used instead of diodes (Active Clamp NPC inverter, ...

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