What is arguably more important is the DC bus voltage drop at full load. Any impedance added to reduce input current distortion will introduce a voltage drop as the VFD is loaded. Even a 5% AC line reactor will introduce a 5% voltage drop when operated at full load. As the voltage drops, the motor will have to draw more current in order to deliver the power required for the application. As current increases the losses in the motor will increase proportional to the square of this current. The motor will run much hotter and could be susceptible to overheating and pre-mature failure.

As shown in Figure 12-3, the 18-Pulse VFD introduced more than an 8% DC bus voltage drop at full load. This is due to the fact that the 18-Pulse solution requires significantly more impedance to reach the performance level of the LINEATOR™. The total impedance includes the phase shifting transformer, reactors to prevent cross-commutation, an AC reactor ahead of the phase shifting transformer and the AC line reactor within the VFD itself. The impedance of the LINEATOR™ is a combination of the reactor and capacitors resulting in much lower through impedance presented to the VFD. The high number of inductive components in the 18-Pulse VFD also explains why the losses are much higher and efficiency lower.

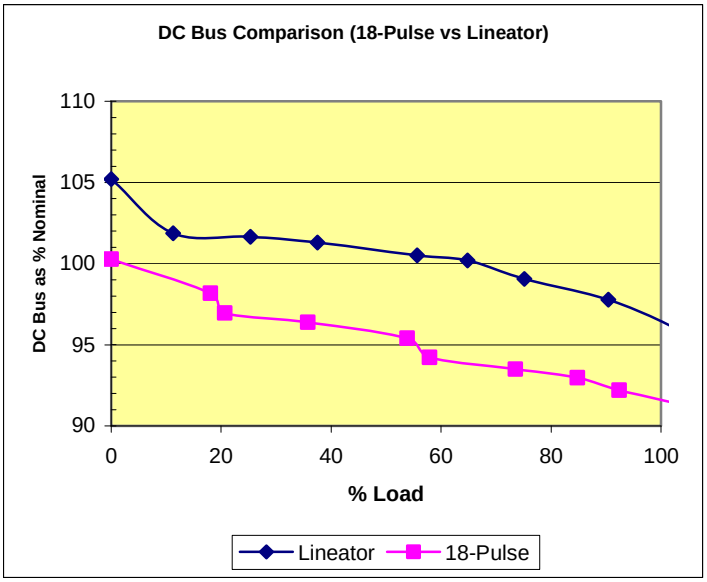


Figure 12-3: DC Bus Voltage comparison – 18-Pulse vs

**13. Is the LINEATOR™ compatible with all VFD's?**

The standard LINEATOR™ AUHF Type D is designed to reduce the harmonic currents generated by an AC PWM Variable Frequency Drive equipped with a 6-pulse diode bridge rectifier. This includes a VFD that uses an SCR bridge for pre-charge purposes. It is compatible with all PWM AC Drive configurations.

For thyristor bridge (or SCR) applications, such as DC Drives and industrial rectifiers, a Type T LINEATOR should be selected. The Type T unit is designed to accept the phase back angle introduced by the thyristor operation. Reduction of current distortion will be slightly less than that achieved with a Type D unit operating on a diode bridge but still will achieve < 8% ITHD at full load operation.