

APPENDIX C

Derating Factors

C-1. Heating, ventilation, and air conditioning (HVAC).

a. 50 Hz. The output of directly coupled, motor driven equipment must be derated to account for the reduction in shaft speed to 5/6 the 60 Hz value. Otherwise, the mechanical coupling used between the motor and driven equipment should be purchased to give the required rotating speed. HVAC controls that are frequency dependent must be purchased in 50 Hz configurations.

b. Voltage. Derating for voltage is not an option.

C-2. Electrical distribution and protection for transformers.

a. 50 Hz. In general, derating for frequency is not recommended. See chapter 3 for details.

b. Voltage. Derating for voltage is not recommended. Vendors can provide almost any needed input voltage rating. Consult vendor regarding derating possibility if derating is absolutely necessary.

C-3. Electrical distribution and protection for power factor capacitors.

a. 50 Hz. Derate kilovolt-amperes reactive (KVAR) rating by multiplying 60 Hz KVAR rating by 5/6 to yield 50 Hz KVAR rating.

b. Voltage. Derating for voltage is not recommended. Vendors can provide almost any needed voltage rating. Consult vendor regarding derating possibility if derating is absolutely necessary.

C-4. Electrical distribution and protection for protection equipment.

a. 50 Hz. Different trip curves may be needed. Consult vendor for these curves.

b. Voltage. Derating for voltage should not be needed. Verify with vendor since special protection equipment may need derating.

C-5. Other electrical distribution and protection.

Derating either cannot or should not be performed. Contact vendors to purchase appropriately rated equipment.

C-6. Safety and security equipment.

a. 50 Hz. Depends on type of power supply. Derating is either not necessary or not possible. Contract vendor to purchase appropriately configured power supply.

b. Voltage. Derating for voltage is not recommended. Contact vendor to purchase appropriately configured power supply, or use transformer to convert supply voltage level to power supply input level.

C-7. Communication equipment.

a. 50 Hz. Depends on type of power supply. Derating is either not necessary or not possible. Contact vendor to purchase appropriately configured power supply.

b. Voltage. Derating for voltage is not recommended. Contact vendor to purchase appropriately configured power supply, or use transformer to convert supply voltage level to power supply input level.

C-8. Incandescent lighting.

a. 50 Hz. No derating necessary. Incandescents are frequency insensitive.

b. Voltage. Not possible. Bulb life will suffer drastically. Contact vendor to purchase high voltage bulbs, or use transformer to convert supply voltage to lamp voltage.

C-9. Fluorescent and high intensity discharge (HID) lighting.

50 Hz. Derating is not recommended. Fixtures configured for 50 Hz should be purchased.

C-10. Motors.

a. 50 Hz. In general, derating a 60 Hz motor is not recommended. See chapter 3 for exceptions

b. Voltage. Derating for voltage is not recommended. Contact vendor to purchase appropriately configured equipment, or use transformer to convert supply voltage to motor's rated voltage level.

C-11. Motor Starters.

a. 50 Hz. Derate by multiplying 60 Hz horsepower rating by 4/5 to yield the 50 Hz horsepower rating.

b. Voltage. Derating for voltage is not possible. Contact vendor to purchase appropriately configured equipment, or use transformer to convert supply voltage to motor starter's rated voltage level.

C-12. Clocks.

a. 50 Hz. Derating is possible but meaningless since 60 Hz clock will not keep correct time in 50 Hz environment

b. Voltage. Derating for voltage is not recommended. Contact vendor to purchase appropriately configured clocks, or use transformer to convert supply voltage to clock's rated voltage level.

C-13. Computer power supplies.

a. 50 Hz. Derating is not possible due to equipment construction. Contact vendor to purchase 50 Hz rated equipment.

b. Voltage. Derating for voltage is not possible. Contact vendor to purchase appropriately configured equipment, or use transformer to convert supply voltage to equipment's rated voltage level.