SECTION 16483D - VARIABLE FREQUENCY AC DRIVES

A. PRODUCT

1. Quality Assurance
   a. A.C. drives shall have hi-pot test with all devices mounted and wired.
   b. A.C. drives shall be factory tested for 48 hours at manufacturer’s plant, at rated load, prior to shipment.

2. Electrical Requirements
   a. Drives shall be adjustable frequency, three phase, pulse width modulated waveform type.
   b. Drive power factor shall be minimum 95%.
   c. Specify control speed signal (4-20 ma, 1-10 volt etc.).
   d. Provide transformer or line reactors to reduce harmonic distortion and electrical noise that could be generated on input power lines.
   e. Input voltage variation +10% -5% of nominal without affecting drive performance.
   f. Provide “power-dip” ride through feature, minimum of one second, to prevent unnecessary trip out due to momentary input power interruptions. After momentary power outage, drive shall have capability to start into motor spinning forward and resume normal operation.

3. Provide automatic shutdown without damage to controller upon detection of the following conditions.
   a. Disconnection of power from input or output line voltage.
   b. Instantaneous overcurrent.
   c. Undervoltage and overvoltage.
   d. Single phase fault or 3-phase short circuit.
   e. Electronic motor overload.
   f. Power unit overtemperature.
   g. Ground fault.

4. Provide, factory mounted and wired in controller enclosure:
   a. Input fused disconnect switch or circuit breaker interlocked with enclosure door.
   b. Provide following door mounted items. Meters can be individual or single meter with selector switch for each measured variable.
      1. Analog ammeter.
      2. Analog voltmeter.
      3. 5-digit elapsed time meter.
      6. Frequency (speed) and load indicator meters.
      7. Pilot light for power “on”.
8. Pilot light for speed controller “trip”.
   c. Automatic reversing capability.
   d. Communications port that provides communication link to computer or programmable controller.
   e. Plug-in or integral diagnostic test module.
   f. Constant speed isolation/bypass switch or contactor to allow motor(s) to run across line in event of controller shutdown. Motor overload protection and safeties shall remain functional in bypass mode.
   g. Auxiliary relay with 2 N.O. and 2 N.C. contacts for remote indication of faults.
   h. Overload relay, or NEC recognized motor running overload device.
   i. MOV surge suppressers connected to incoming line terminals.

B. INSTALLATION

1. Provide clean, ventilated environment where drive will be located.
2. Where two or more drives are required install in motor control center enclosure.
3. Provide on-site training by a factory trained service representative, for a period of one eight hour day to instruct Owner’s personnel in basic operation, maintenance and trouble shooting of speed controller. The training sessions hall be video taped in VHS format.
4. Drives, and the motors they operate shall be located where their noise will not disturb the surrounding environment.

END