DIVISION 26 – ELECTRICAL
26 29 00 LOW-VOLTAGE CONTROLLERS
26 29 23 VARIABLE-FREQUENCY MOTOR CONTROLLERS

PART 1 - GENERAL

1.01 GENERAL

A. Provide Variable Frequency Drives (VFD) at all locations where variable motor speed is required. In general, all motors connected to the WSU Building Automation System (BAS) shall incorporate VFDs.

1. VFDs shall be required for all three-phase motors 1.5 HP and larger.

B. Coordinate with the design Mechanical Engineer to confirm locations and requirements for all proposed VFDs.

C. Operating Conditions:

1. The drive shall be suitable for use in the operating environment.

2. Fan-assisted cooling shall be used where required to dissipate heat. The fan shall be installed in such a manner as not to degrade the enclosure rating.

PART 2 - PRODUCTS

2.01 CONSTRUCTION

A. Integral Bypass Switch:

1. Bypass switch shall be provided, except for parallel fan applications or systems which have other backup operational capabilities if the drive should fail.

2. Coordinate with Mechanical Engineer for other applications where a bypass switch may be required.

3. Bypass switch shall be an integral component of the VFD.

4. Bypass switch shall provide a means to manually switch a single motor from drive control to line power operation. Bypass switch function shall electrically isolate the drive line and load connections and shall provide the bypass path.

B. Provide an integral line-side fused disconnect.

C. Where subject to mechanical vibration in multi-motor applications, provide load-side fast-acting fusing for each motor.

2.02 PRODUCTS

A. Pre-approved Manufacturers: ABB ACH 550. No substitutions shall be accepted.

PART 3 - EXECUTION

A. Installation and Field Wiring

1. Drive shall be installed within 50 feet of the controlled motor.

B. Field Start Up and Testing

1. Startup and testing shall be provided at the installation site by the manufacturer or other agent deemed acceptable by the WSU Construction Manager. Startup and testing agent must be certified by the VFD manufacturer.

2. Verify all installation connections and controls.

3. Field adjust all safety controls.

4. Field adjust all drive parameters (including acceleration and deceleration ramps and volts-to-hertz ratio) for smooth operation.

5. All mechanical components shall be adjusted for proper alignment.

6. Demonstrate satisfactory operation of drive, including the bypass switch, under full load rpm. All drives shall be burned-in for a minimum of 72 hours, cycling load to simulate no load/full load and exercise drive power components.

C. Training

1. Provide onsite operation and maintenance training for two identical 4-hour sessions. Coordinate training times through the WSU Construction Manager.

END OF SECTION