

Technical Specification of AC Drives

Scope of work:

Supply, installation and commissioning of Variable voltage Variable Frequency drives referred to as AC Drives for 55KW /75HP AC Induction Motor used in cooling pump for screw compressor application.

Motor Data: AC drive shall be designed for following AC motor

- i) Motor KW rating : 55KW TEFC, IP - 55
- ii) Rated current : 96Amps
- iii) Rated Voltage : 415 volts $\pm 10\%$
- iv) RPM : 1475
- v) Duty Class : S1
- vi) Frequency : 50HZ

Control Techniques:

PWM (Pulse Width Modulation) techniques would be accepted.

Construction:

- i) AC drive enclosure shall provide dedicated user terminals for power and control device connection.
- ii) All enclosure and heat sink fans shall be accessible from the front and shall not require the removal of the AC drive power converter.

Application Data:

- i) AC drive shall be sized to operate a variable torque load.
- ii) The speed range shall be from a minimum speed of 1HZ to a maximum speed of 50Hz.

Noting regarding designing of AC Drive:

- i) AC drive shall be designed to operate from an input voltage of 415Volts $\pm 10\%$
- ii) AC drive shall operate from an input frequency range of 50HZ $\pm 5\%$
- iii) The displacement power factor shall not be less than 0.98 lag under any speed and load condition.
- iv) Efficiency of the drive at 100% speed and full load shall not be less than 97%.
- v) Variable torque rated AC drive over current capacity shall not be less than 110% for 1mins.
- vi) AC drive shall be protected against short circuit faults between output phases and to ground. Other protection which is not explicitly mentioned as required has to be incorporated in AC drive.

- vii) In built memory card shall retain and records run status and fault type of the past.
- viii) Keypad panel interface shall be provided for AC drive adjustments via a touch keypad.
- ix) Harmonic mitigation shall be considered i.e THD less than 3%.
- x) AC drive enclosure shall provide a dedicated operator panels which shall indicate following things
 - a) Power On Led indicator
 - b) AC drive fault LED indicator
 - c) AC drive Run LED indicator

Document:

Supplier of AC drive shall provide two sets of comprehensive manual for installation having wiring diagram etc along with troubleshooting manual.

