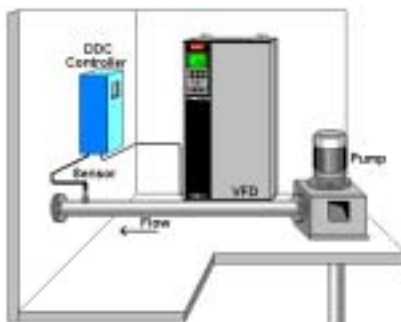


# Pre-Test



Answer the following application questions based on this diagram.

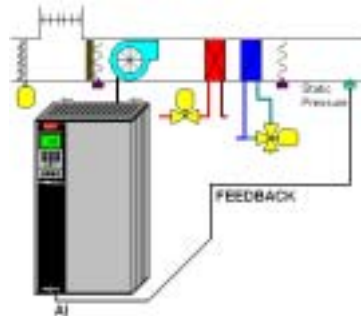
## Multiple Choice

1. What type of application curve must a VFD output to operate the pump correctly?
  - A) Constant Torque Curve
  - B) Variable Torque Curve
  - C) Constant Power Curve
  - D) Variable Power Curve
  - E) Don't know
  
2. What level of starting torque is needed to operate the centrifugal pump correctly?
  - A) High Overload – 230%
  - B) High Overload – 160%
  - C) Normal Overload – 150%
  - D) Normal Overload – 110%
  - E) Don't know
  
3. Looking at the pump application above, which of the following is the correct control configuration for the Controller and VFD?

Note: The sensor is wired directly to the Controller.

  - A) Controller is Open Loop and VFD is Open Loop
  - B) Controller is Open Loop and VFD is Closed Loop
  - C) Controller is Closed Loop and VFD is Open Loop
  - D) Controller is Closed Loop and VFD is Closed Loop
  - E) Don't know

# Pre-Test



Answer the following application questions based on this diagram.

Multiple Choice

4. Determine the appropriate action and gain for the example shown here:
- A) Normal Control; Gain = 1.00
  - B) Inverse Control; Gain = 1.00
  - C) Normal Control; Gain = 0.01
  - D) Inverse Control; Gain = 0.01
  - E) Don't know

5. The fan is increasing its speed to maximum 60Hz then dropping its speed down to its minimum 20Hz, constantly. It never stops, but keeps cycling between max and min frequencies. Which of the following adjustments should make this system more stable?
- A) Increase the Gain from 5.00 to 10.00
  - B) Decrease the Gain from 5.00 to 1.00
  - C) Change the action to Inverse
  - D) Change the action to Normal
  - E) Don't know



## ***How did you do?***

Answers:

1. B. Variable Torque Curve
2. D. Normal Overload – 110%
3. C. Controller is Closed Loop and VFD is Open Loop
4. A. Normal Control; Gain = 1.00
5. B. Decrease the Gain from 5.00 to 1.00

If you got 4 or 5 right – skip this lesson and go to lesson 5

If you got 3 or less right, please review this lesson.