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Continuing Education Course #246
Compressed Air Systems
for Forest Products Facilities

1. Compressor flow capacity is specified on a basis of:

- a. CFM at compressor discharge pressure.
- b. CFM at use pressure.
- c. CFM at standard conditions.
- d. CFM at compressor inlet pressure.

2. Equipment flow requirements should be specified of a basis of:

- a. CFM at compressor discharge pressure.
- b. CFM at use pressure.
- c. CFM at standard conditions.
- d. CFM at compressor inlet pressure.

3. A cylinder has a diameter of 4 inches, a stroke length of 10 inches and a rod diameter of 1.25 inch. Air is required to extend and to retract the cylinder. Barometric pressure is 14.5 psia. Air is supplied to the cylinder at 80 psig. The cylinder goes through 10 cycles per minutes. What is the displacement volume of the cylinder per cycle?

- a. 0.138 CF
- b. 0.0727 CF
- c. 0.0656 CF
- d. 14.5 CF

4. For the above cylinder, what is the compressed air usage at 80 psig?

- a. 0.138 CFM
- b. 1.38 CFM
- c. 0.727 CFM
- d. 0.0727 CFM

5. For the above cylinder, what is the compressed air usage at compressor inlet conditions?

- a. 1.38 ICFM
- b. 9.0 ICFM
- c. 12.0 ICFM
- d. 14.0 ICFM

6. Suppose a machine uses 5 identical cylinders as described in the problem above. What is the compressed air usage at compressor inlet conditions?

- a. 6.9 ICFM
- b. 45 ICFM
- c. 13.8 ICFM
- d. 60 ICFM

7. Suppose a pressure regulator on the inlet pipe to the machine is adjusted to 60 psig. What is the total compressed air usage at compressor inlet conditions?
- a. 45 ICFM
 - b. 60 ICFM
 - c. 35.5 ICFM
 - d. 40 ICFM
8. A compressed air system will typically be comprised of:
- a. One or more air compressors, compressed air dryer, receiver.
 - b. Aftercoolers, compressed air dryer, oil/water separator.
 - c. One or more air compressors, aftercoolers, compressed air dryer, receiver, oil/water separator.
 - d. One or more air compressors, aftercoolers, oil/water separator.
9. For refrigerated dryer, the recommended design factor is 1.0
- a. True
 - b. False
10. The customary design factor to account for leakage is 1.3.
- a. True
 - b. False
11. Reciprocating compressors are more efficient than oil-flooded rotary screw compressors.
- a. True
 - b. False
12. An air-cooled aftercooler should be specified to cool the compressor discharge air to within ____ of ambient.
- a. 10 degrees Fahrenheit
 - b. 20 degrees Fahrenheit
 - c. 30 degrees Fahrenheit
 - d. 40 degrees Fahrenheit
13. Refrigerated compressed air dryers typically cool the air to about ____ to force condensation of water vapor.
- a. 30 degrees Fahrenheit
 - b. 45 degrees Fahrenheit
 - c. 55 degrees Fahrenheit
 - d. 38 degrees Fahrenheit
14. Automatic dewpoint control can result in a savings of compressed air if compressed air is used for regenerating the desiccant.
- a. True
 - b. False
15. Secondary receivers are located _____.
- a. Between the compressor and the aftercooler.
 - b. Between the aftercooler and the dryer.
 - c. Immediately after the dryer.
 - d. Close to points of larger, intermittent air consumptions.
16. Air receivers in compressed air systems serve the important purposes of:
- a. Equalizing the pressure variation from the start/stop and modulating sequence of the compressor.
 - b. Storage of air volume equalizing the variation in consumption and demand from the system.

- c. Collecting condensate and in the air after the compressor.
- d. All of the above.

17. An oil concentration of 0.005 oz/1000 CF of free air is equal to _____ PPM.

- a. 1.0 PPM
- b. 4.17 PPM
- c. 10 PPM
- d. 41.7 PPM

18. EPA requires that the oil and grease concentration at a plant outfall be less than _____ mg/liter.

- a. 5
- b. 10
- c. 15
- d. 20

19. An oil/water separator may be used to reduce the concentration of oil and grease in the condensate stream from an air compressor.

- a. True
- b. False

20. The bidder should provide the oil carryover concentration in the compressed air.

- a. True
- b. False

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