



Distillation Columns, Reboilers, and Condensers



Course Objectives

1. Describe the purpose, function, operation, components, typical application, and symbols of a binary column.
2. Describe the purpose, function, operation, components, typical application, and symbols of a side-draw column.
3. Describe the purpose, function, operation, components, typical application, and symbols of a multi-draw column.
4. Identify factors that affect the physical dimensions of a distillation column.
5. List reasons why vacuum distillation is used in a process system.
6. Describe the purpose, function, operation, components, typical application, and symbols of a reboiler.
7. Compare the use of forced, natural circulation, and kettle reboilers.
8. Compare the use of external versus internal reboilers.
9. Describe how condensers can be used in overhead systems.
10. Describe the purpose, function, operation, components, and typical application of shell and tube condensers.
11. Describe the purpose, function, operation, components and typical applications of air-cooled condensers.
12. Identify column, reboilers, and condensers symbols used on a P&ID.



Key Terms (Define the following)

kettle reboiler - _____

thermosyphon reboiler - _____

vacuum distillation - _____



Questions

1. Reboilers can be oriented horizontally or vertically.
 True
 False
2. How does a stab-in reboiler differ from an external reboiler?

3. Condensers in overhead systems are used to _____.
 bring the feed mixture to a boil
 separate the components of the feed mixture
 enhance the vapor and liquid contact
 cool the vapors leaving the column