JOHNSTONE SUPPLY

Power Your Career

Refrigeration Fundamentals

Objective

- Become familiar with the refrigeration cycle process.
- Understand concepts such as Change of State, Heat Transfer, and Refrigerant.
- Learn how all three work together in an AC system to remove heat from the home.

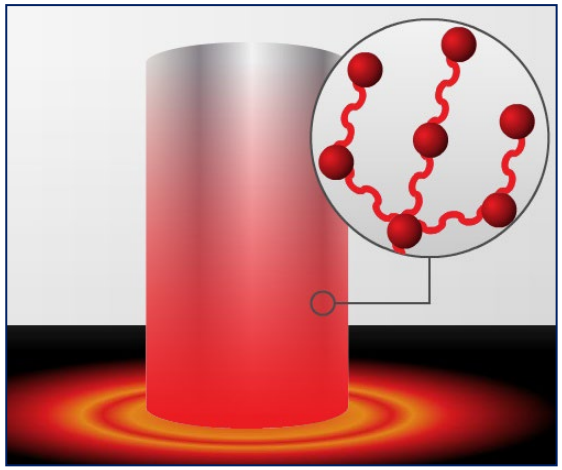
Need edits/formatting

Key Principles

Heat Transfer

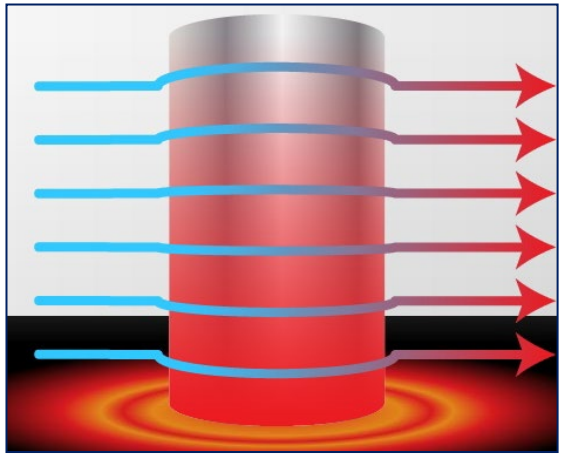
Heat transfer methods

- Heat is a form of energy
- Heat transfer refers to how heat moves



Conduction

Convection



Radiant

Heat Transfer

Measured in BTUs

BTU – British Thermal Unit
A unit of measurement used to describe how machines and systems manage heat

BTU

1 lb H_2O

+1°

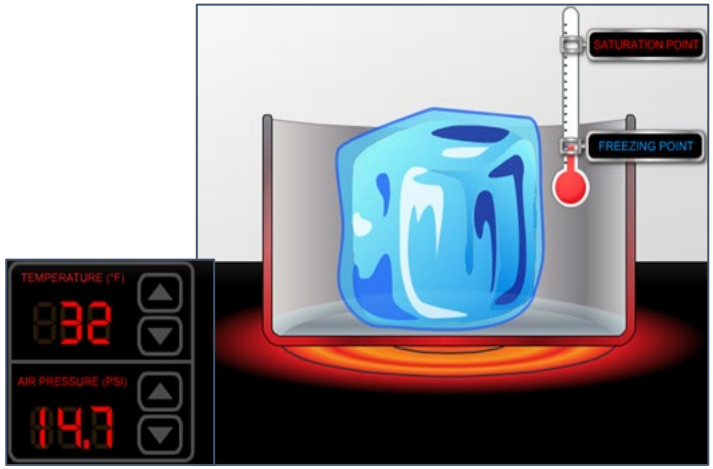
Change of State

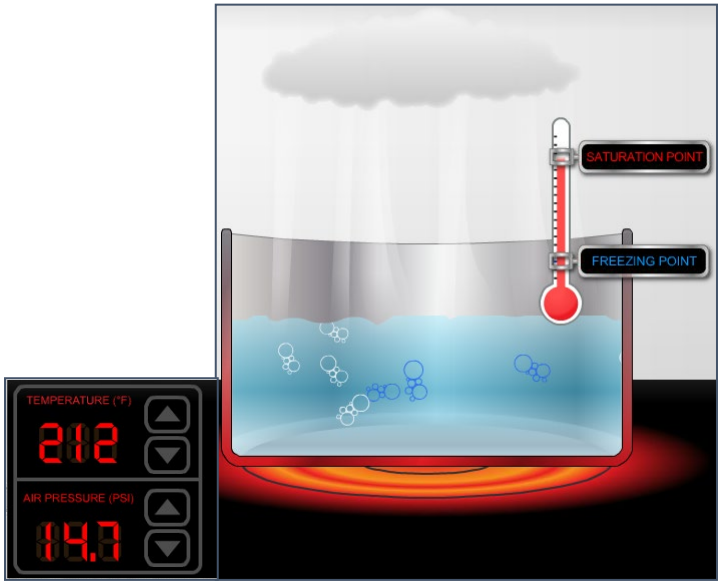
Definitions

Saturation Point:
When a substance changes from liquid to vapor, or vapor to liquid

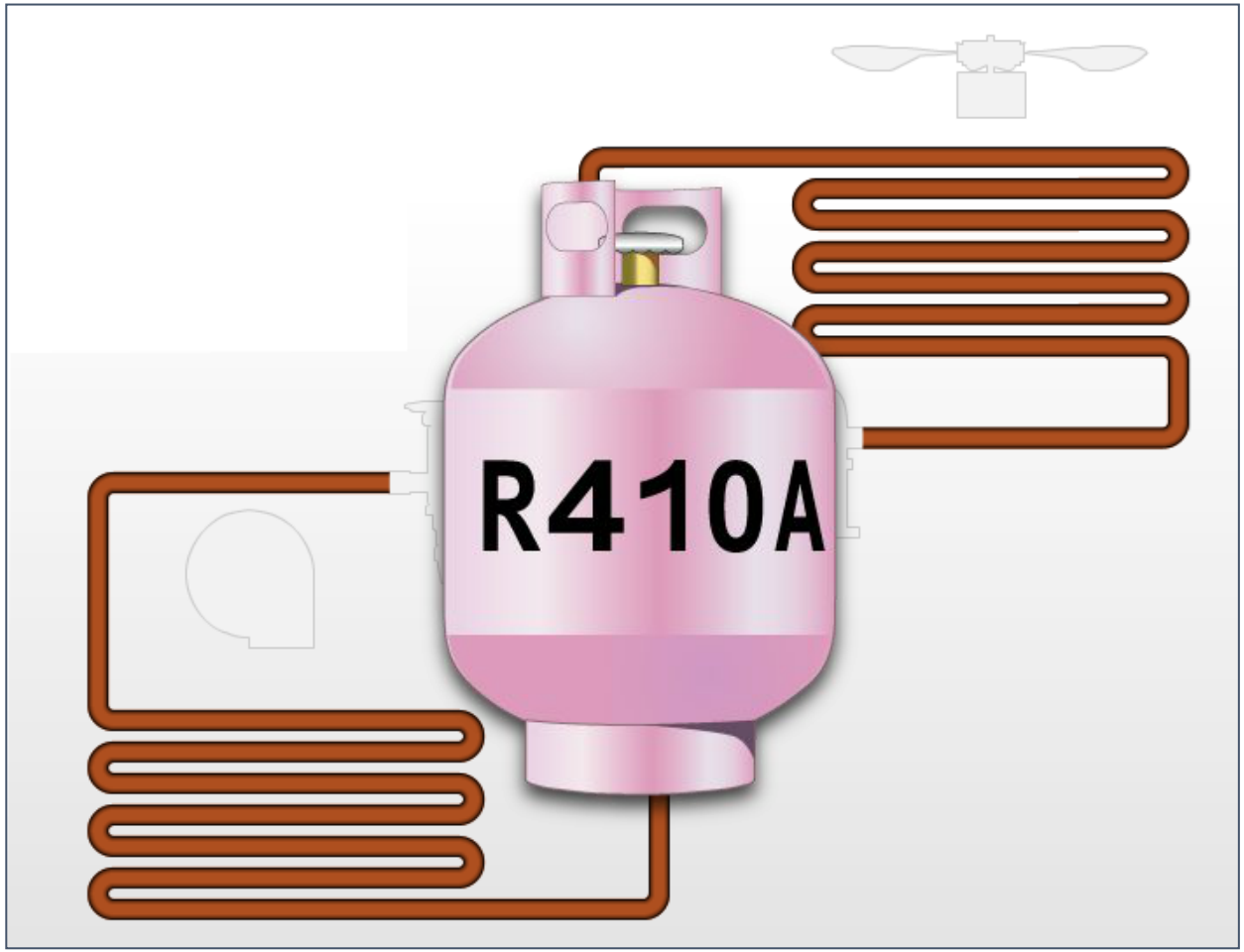
Evaporation: Liquid ➡ Vapor

Condensation: Vapor ➡ Liquid

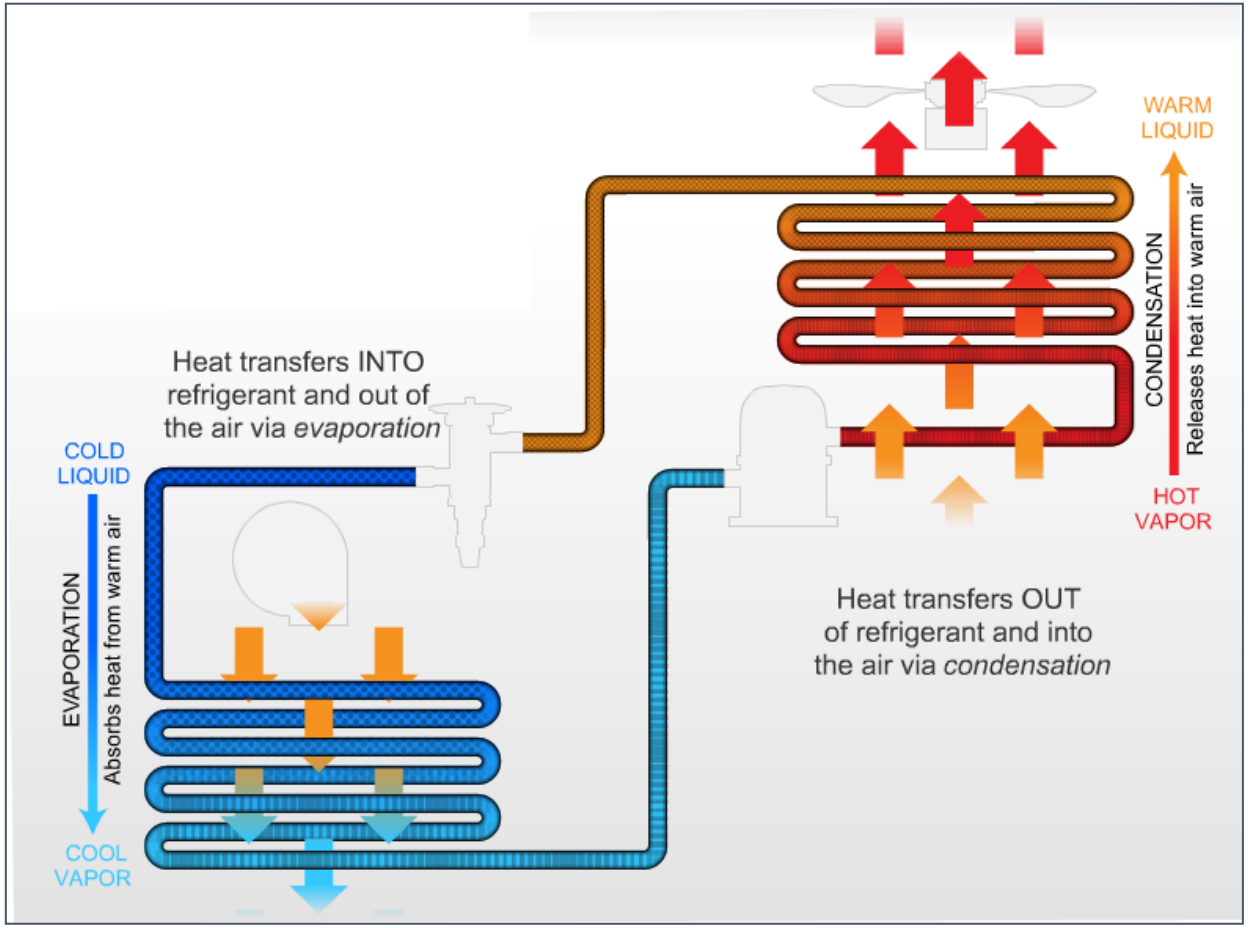




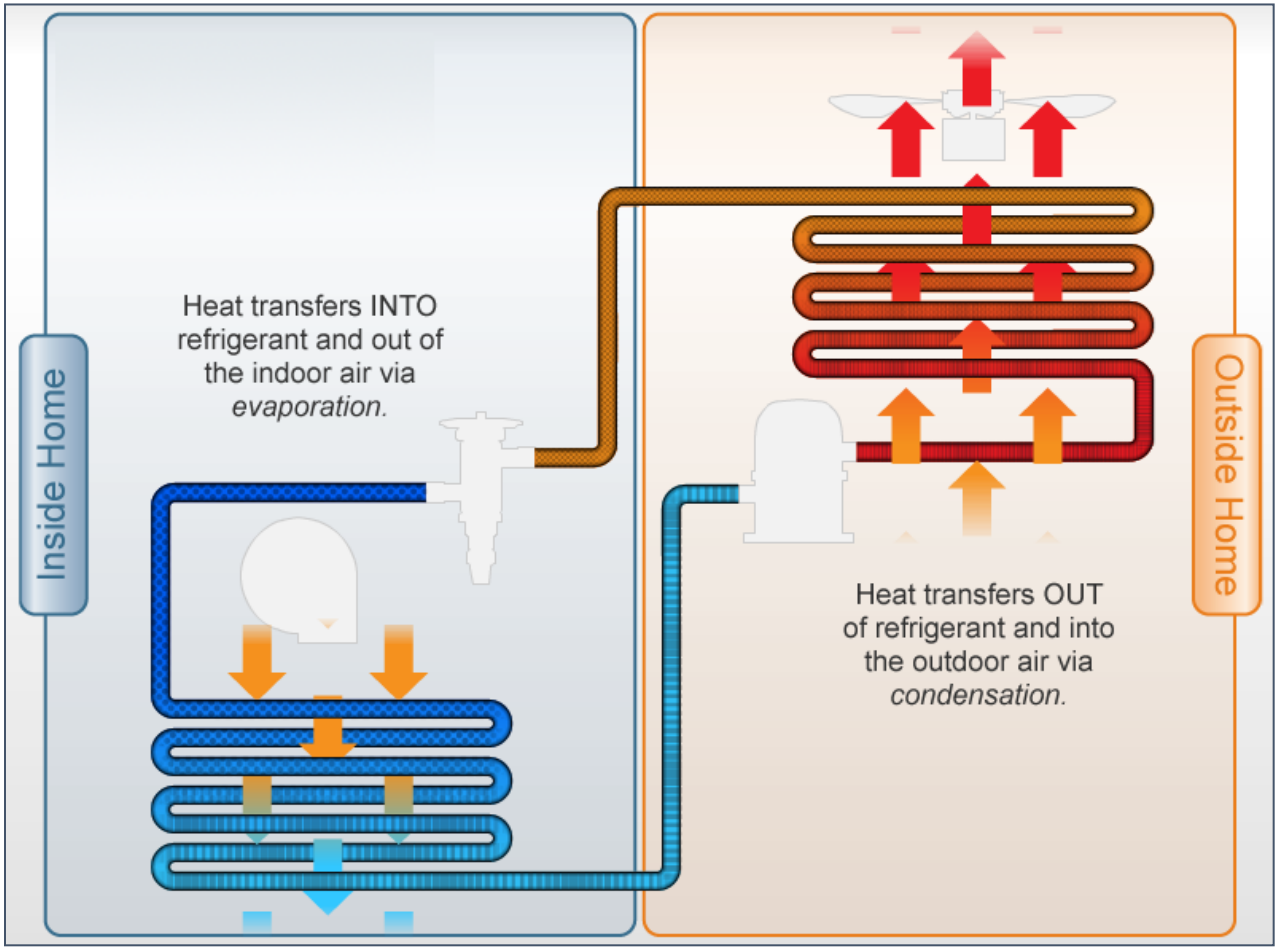
Refrigerant (R-410A)



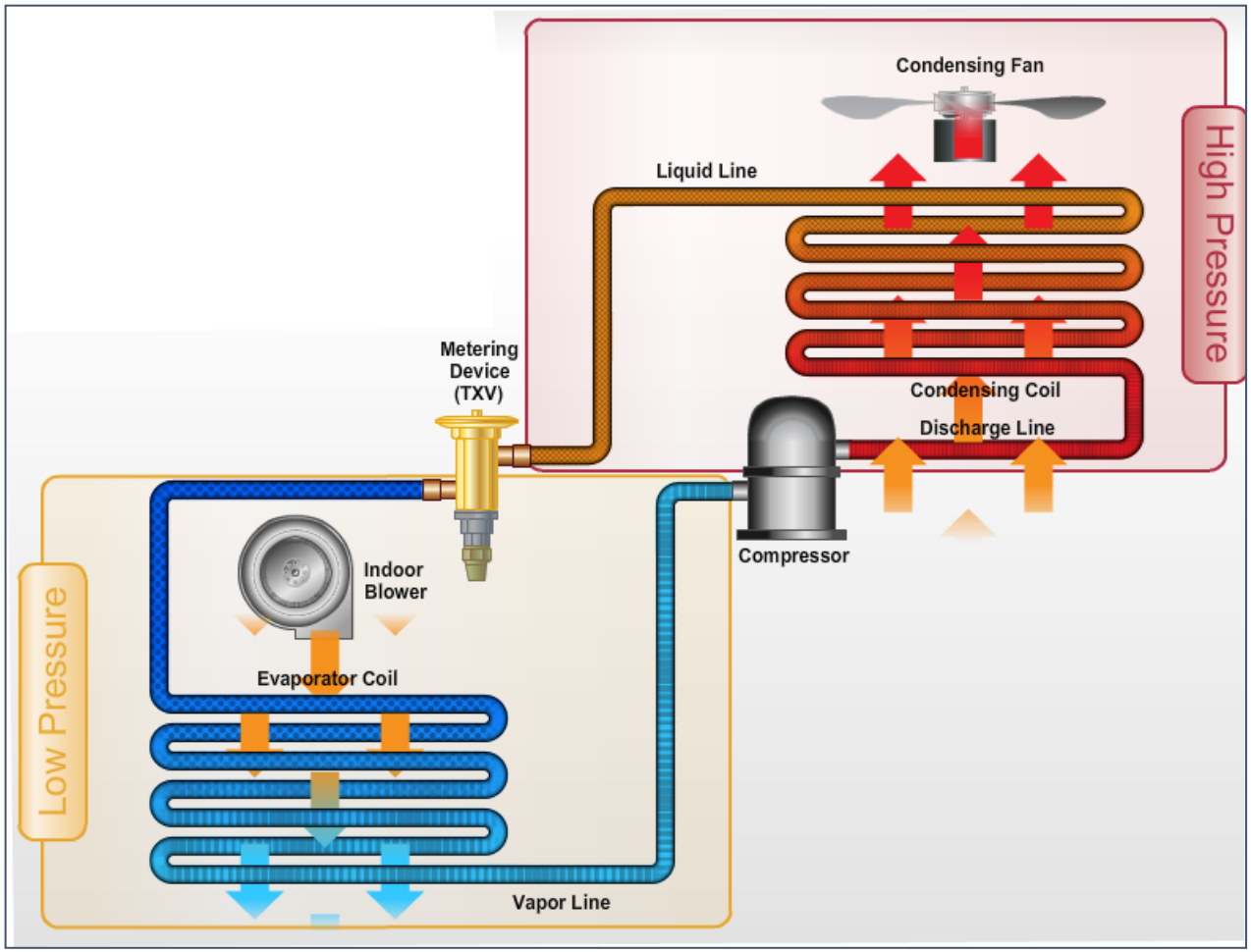
Refrigerant



Putting it Together

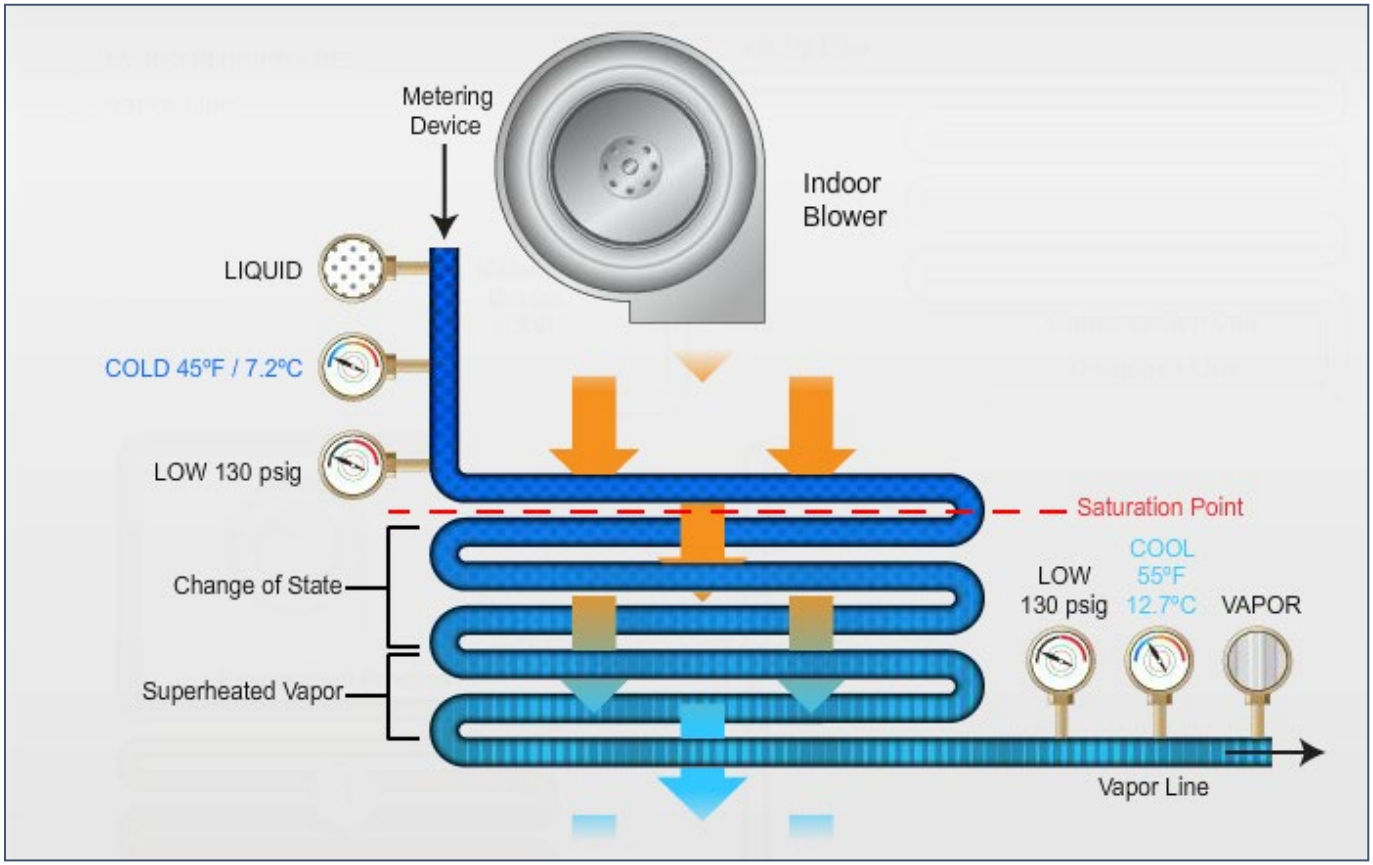


Parts of the System



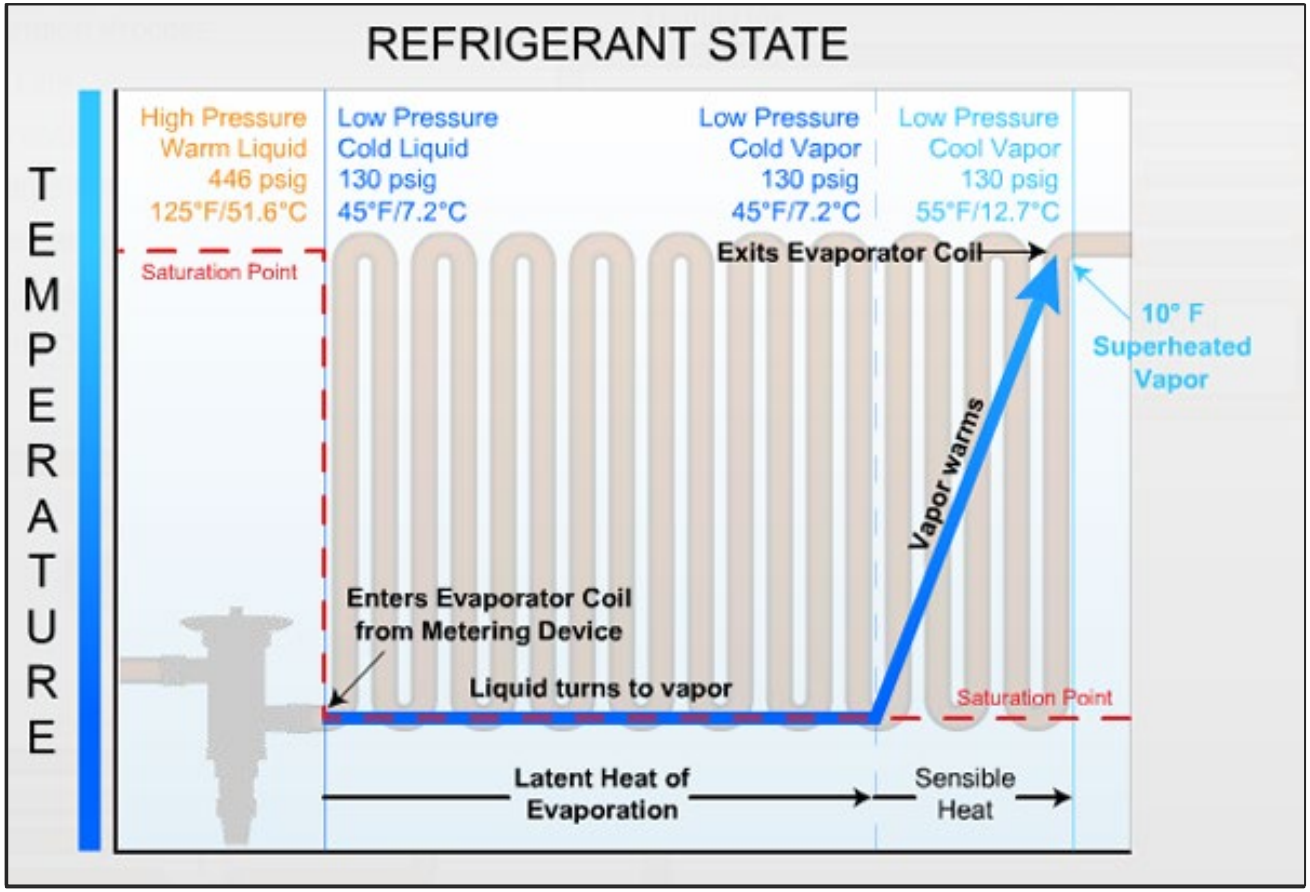
Exploring the Refrigeration Cycle

The Evaporation Process



Exploring the Refrigeration Cycle

The Evaporation Process

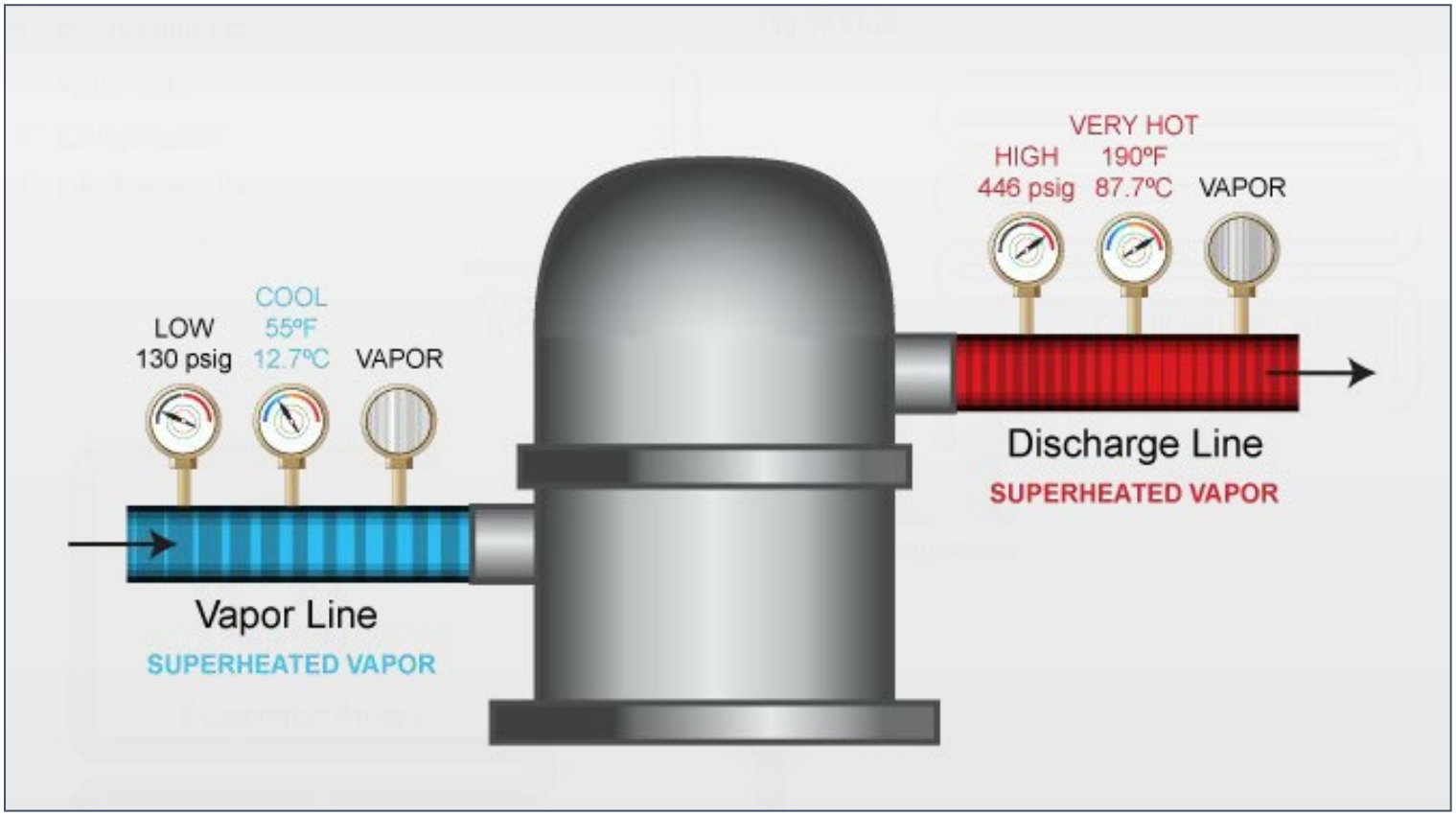


Exploring the Refrigeration Cycle

The Vapor Line

Exploring the Refrigeration Cycle

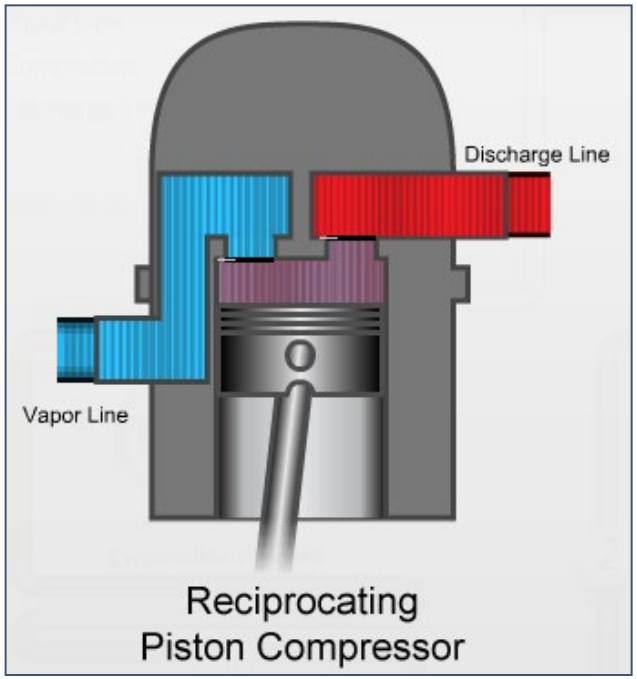
The Compression Process



Exploring the Refrigeration Cycle

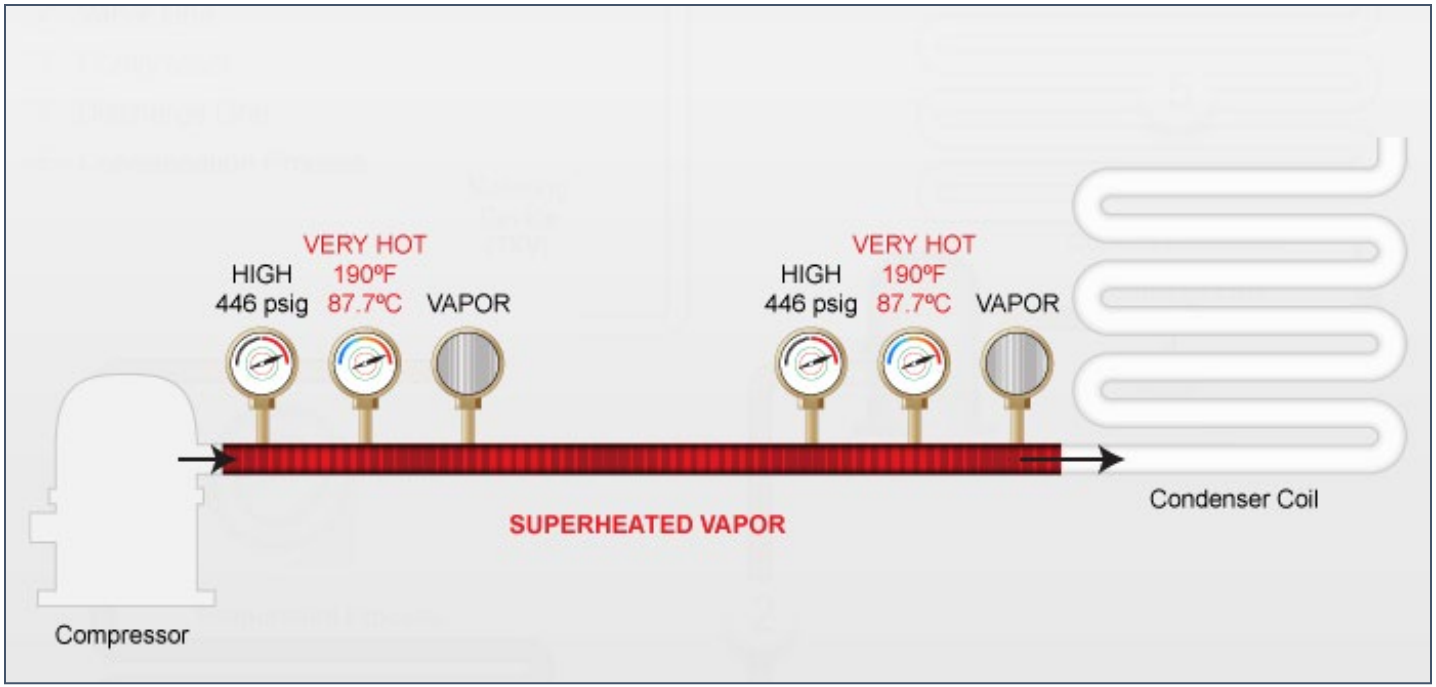
Two Types of Compressors

- Reciprocating Piston Compressor
- Scroll Compressor



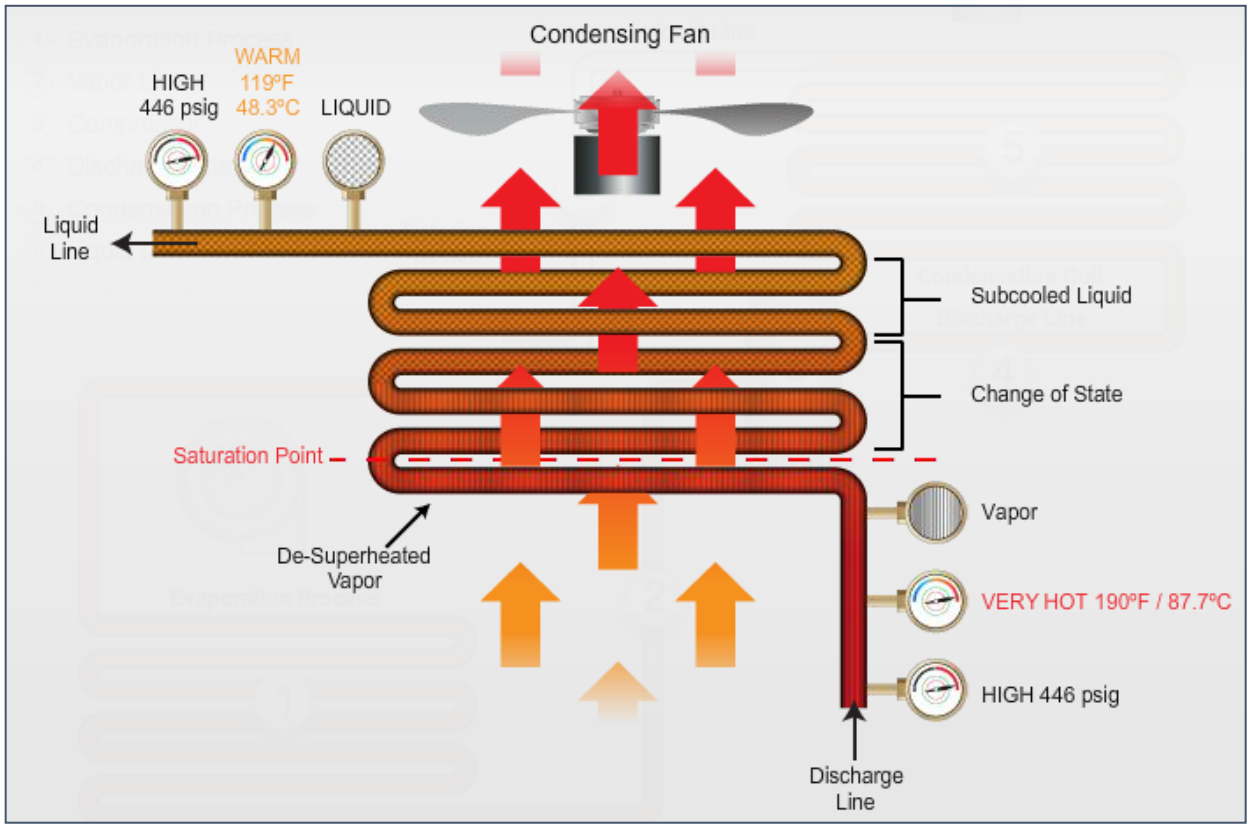
Exploring the Refrigeration Cycle

The Discharge Line



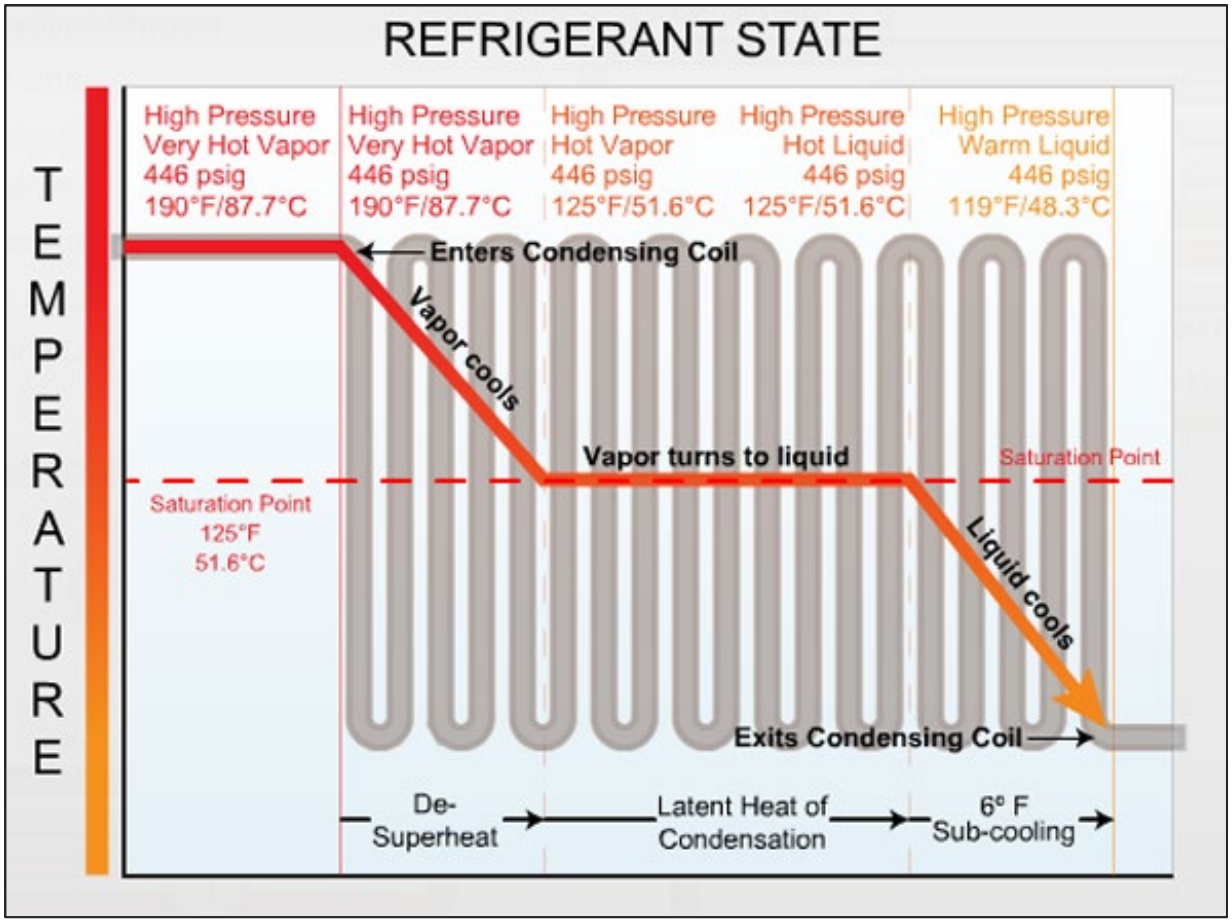
Exploring the Refrigeration Cycle

The Condensation Process



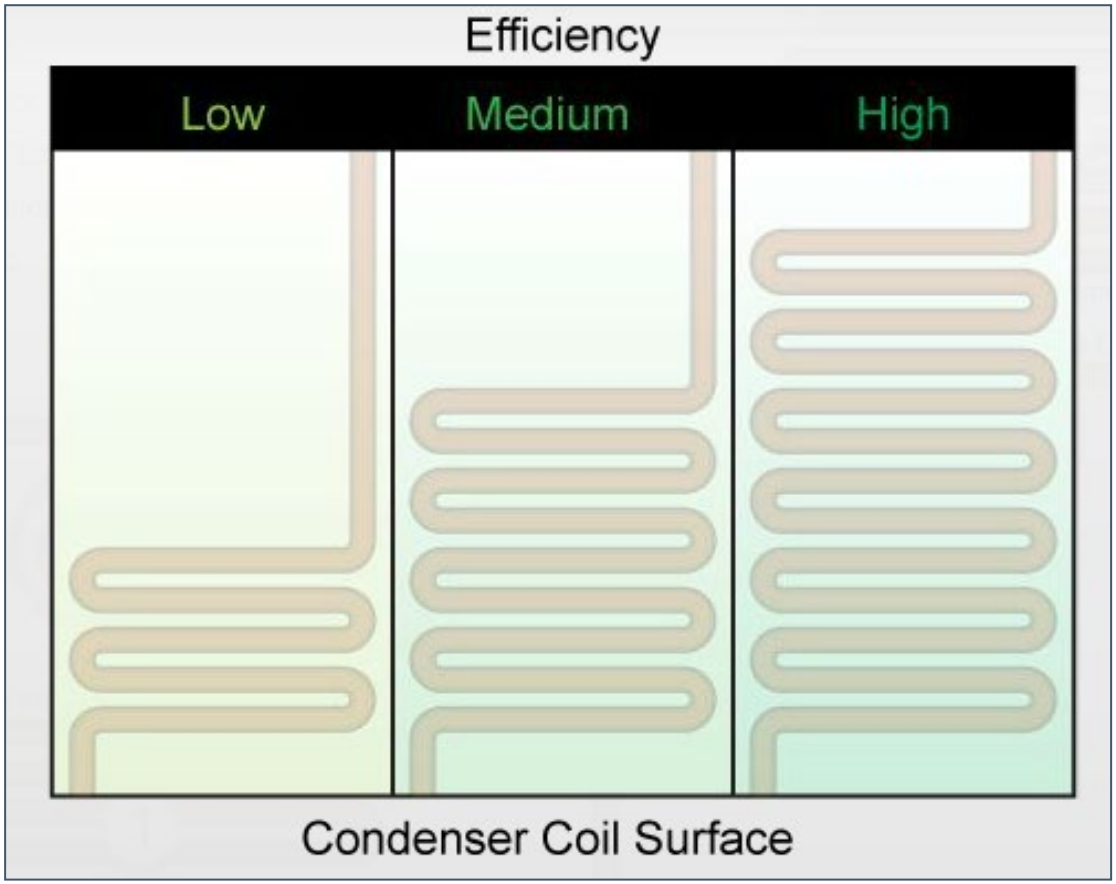
Exploring the Refrigeration Cycle

The Condensation Process



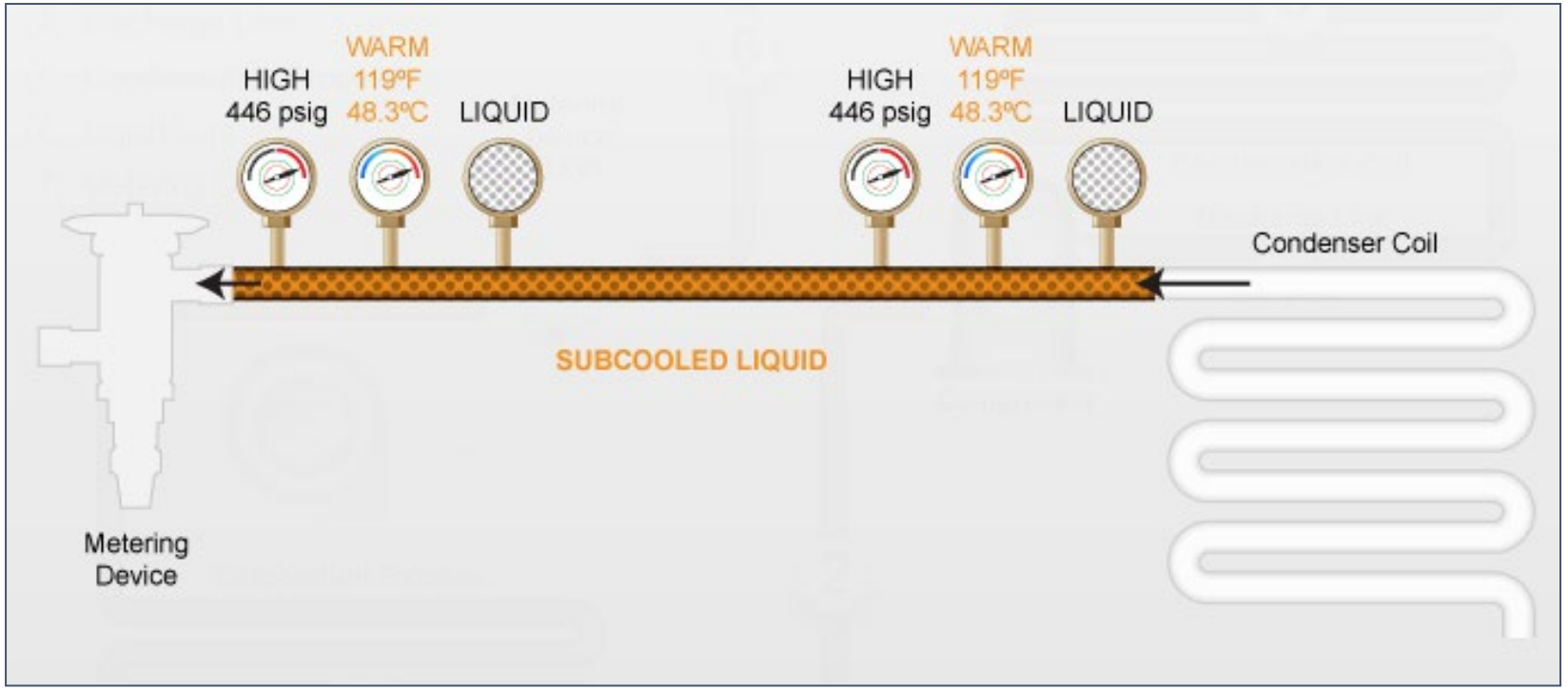
Exploring the Refrigeration Cycle

Condenser Efficiency



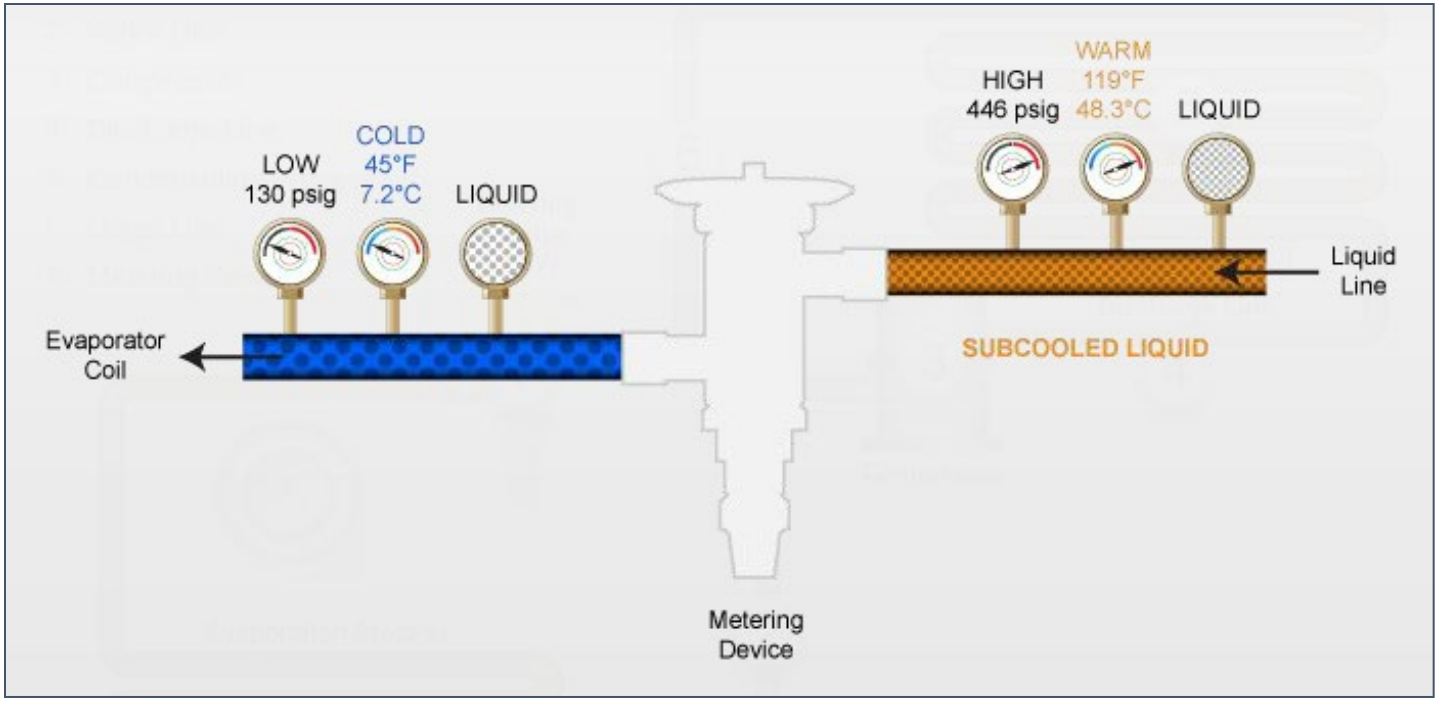
Exploring the Refrigeration Cycle

The Liquid Line



Exploring the Refrigeration Cycle

The Metering Device



Exploring the Refrigeration Cycle

Additional Equipment