

In-Class Activity #1**Compressor Lift–Frozen Food Warehouse**

- Single-stage system serving -0°F freezer
- Freezer evaporators designed for a 12°F TD
- Single-stage screw compressors with liquid injection oil cooling
- Screw compressors shut down on high oil temp when head pressure is less than 110 psig
- Defrost pressure requirement of 95 psig

1. What is the maximum allowable suction pressure?

2. What is the minimum allowable condensing pressure?

In-Class Activity #3

Produce and Frozen Food Warehouse

- Two-stage system
 - Low stage: -15°F ice cream freezer and -5°F freezer
 - Intermediate: 30°F to 40°F coolers and dock
- Ice cream freezer evaporators designed for an 10°F TD
- Freezer evaporators designed for a 15°F TD
- Cooler and dock evaporators designed for a 15°F TD
- All compressors use thermosiphon oil cooling.
- Cooler and dock evaporators utilize thermal expansion valves (TXVs) to feed high pressure liquid, and don't feed well at less than 80 psig differential.

1. What is the maximum allowable suction pressure for booster compressors?

2. What is the maximum allowable intermediate pressure for high-stage compressors?

3. What is the minimum allowable condensing pressure?

In-Class Activity #4

Compressor Lift– Dairy Processor

- Single stage system
 - 25°F glycol
 - 32°F coolers
 - 50°F coolers
- Glycol plate and frame heat exchanger designed for 5°F TD
- Cooler evaporators designed for a 12°F TD
- Screw compressors have liquid injection oil cooling with electronic expansion valves
- 32°F cooler defrost uses hot gas back pressure regulators set at 70 psig
- Compressor #3 starts to pass a lot of oil if head pressure gets below 115 psig. Other compressors are fine down to 90 psig.

1. What is the maximum allowable suction pressure?

2. What is the minimum allowable condensing pressure?

3. What could you do with this system to improve it, operate it efficiently?