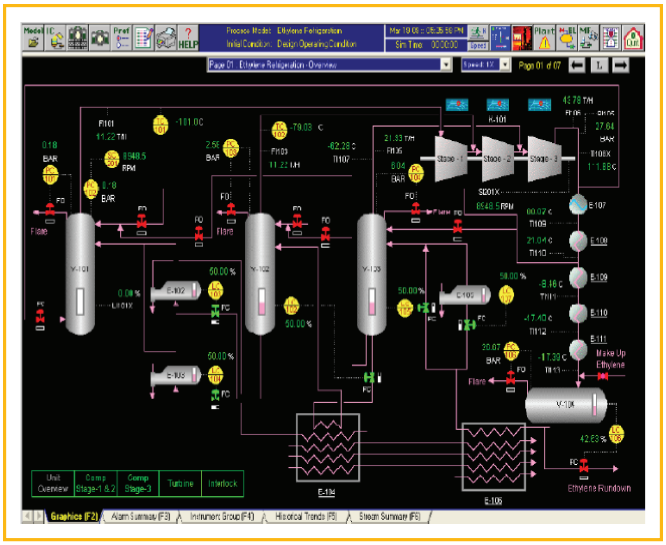
EnVision
e-Learning & Universal Simulation

Ethylene Refrigeration Unit

A real-time dynamic simulation of an Ethylene Refrigeration Unit

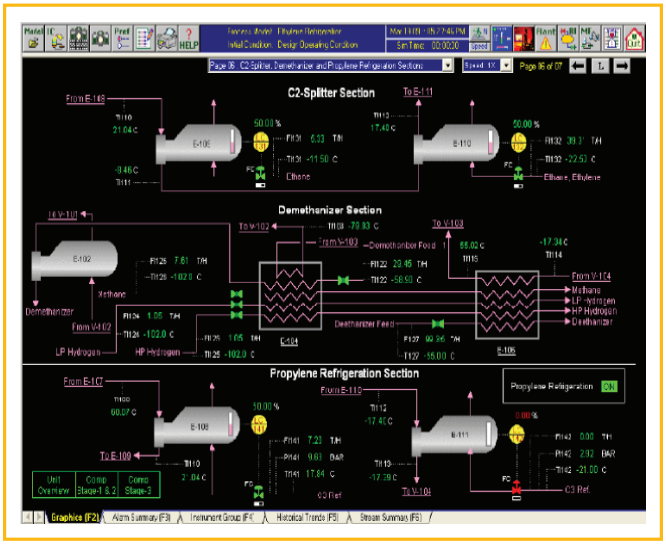
Simulation:

GSE's EnVision simulation is a real-time dynamic process simulation program used for operator training . It is based upon a rigorous and high-fidelity mathematical process model to provide a realistic dynamic response of a process unit.



The simulator allows a trainee to practice:

- Startup and Shutdown Operations
- Normal Operations
- Emergency Shutdown Operation
- Control Exercises
- Troubleshoot and practice recovery from Equipment, Instrument, and Control Valve Malfunctions



- Simulation comes with a Learning Management System (LMS) called SimAdmin that allows an instructor to register trainees and monitor their performance
- Simulation is available as Standalone (Single or Dual Monitor) and Instructor-Trainee versions

GSE Solutions
www.gses.com/EnVision

Ethylene Refrigeration Unit

Major Equipment:

- 3-Stages Compressor
- 2-Stages Turbine
- Governor
- 3 Suction Drums
- Ethylene Accumulator
- 2 Off-gas Exchangers
- 3 Demethanizer Chillers
- Ethane/Ethylene Rundown Chiller
- 2 Ethylene Desuperheaters
- 2 Ethylene Condensers
- Startup Condenser
- Lube Oil Reservoir
- Lube Oil Coolers
- Lube Oil Filters
- Lube Oil Accumulator
- Lube Oil Head Tank

Key Operating Variables:

- Ethylene Refrigerant Throughput:

  44.0 T/H (96.5 MLB/HR)

- 3 Refrigerant Temperatures:

  -101.0 C (-149.8 F)
  -63.0 C (-81.4 F)
  -15.0 C (5.0 F)

- Compressor Discharge Pressures:

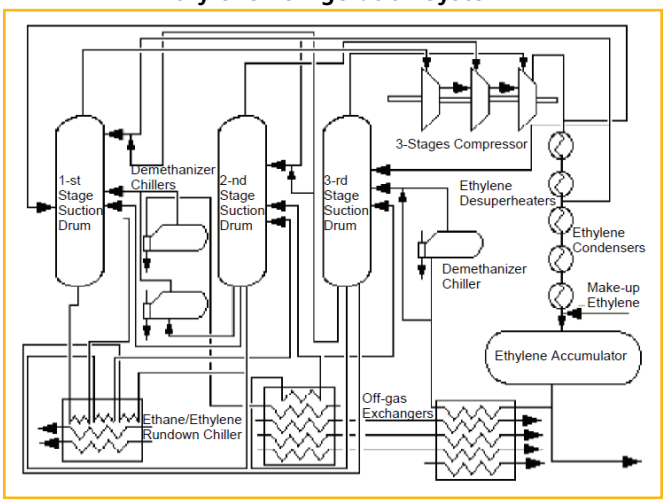
  1-st Stage

  2.6 BAR (37.5 PSIG) 2-nd Stage

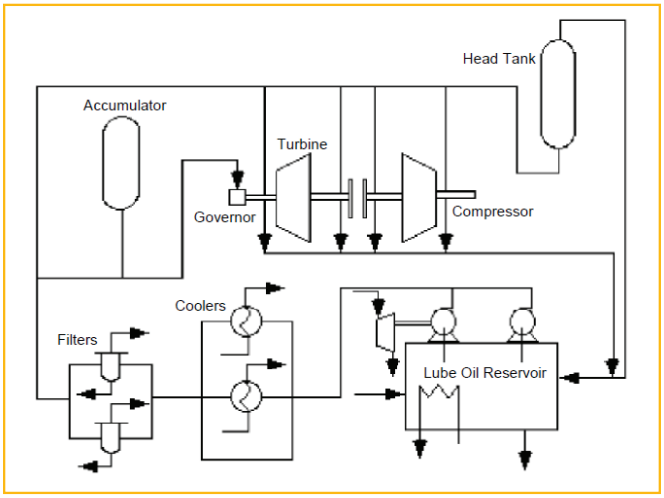
  6.0 BAR (87.6 PSIG) 1-st Stage

  27.6 BAR (400.8 PSIG)

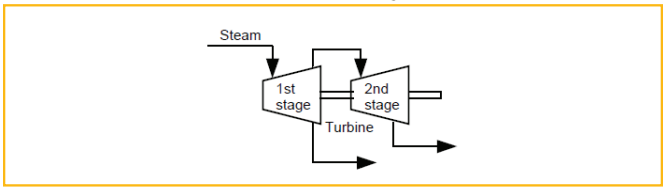
Ethylene Refrigeration System



Lube Oil System



Steam Turbine System



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