

## Senior Design I

### Customer Interview Questions

1. Characteristics of the valves which are being tested
  - a. Wear
  - b. Leakage (performance)
  - c. Failure modes
    - i. Two different springs (5lb/in 2.5lb/in)
    - ii. Spring Breakage
    - iii. Metal valve seat wear on back side (causing longer travel and longer opening duration... leakage) (simulated by 1/32 or 1/16 in ground from the back)
2. Quantity of testing (frequency, volume)
  - a. Large volume of testing is most important
  - b. Number of valves at one time
    - i. Blocking off ports
  - c. Duration of single test
  - d. Setup time
    - i. Quickly as possible
3. Desired measurements and data from test bench
  - a. Velocity of valve movement
  - b. Displacement of valves
    - i. Total stroke is appx. 1mm
  - c. Leakage (performance)
  - d. Vibration
  - e. Wear indications without disassembly
4. Range of parameters for testing
  - a. Various pressures
  - b. Temperature control
    - i. No
  - c. Any others?
    - i. Nothing Specific
5. Actual construction
  - a. Downscaling (footprint and weight constraints)
    - i. Smaller is better
    - ii. Mobility is better
  - b. Method for simulating actual conditions (how closely it needs to follow)
  - c. Interchangeability with other valve bodies
  - d. Downtime on actual compressor
    - i. There will be none
  - e. Ease of use