

**Course Objectives/Course Outline**  
**Spokane Community College**

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**Course Title:** Fluid Line Connectors

**Prefix and Course Number:** FLPT 133

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**Course Learning Outcomes:**

**By the end of this course, a student should be able to:**

- select proper fluid line for each application required on machine installation
- properly apply schedule 40 and 80 pipe, suction hose,(1 wire, 2 wire, and 4 spiral) pressure hose, and steel tubing based on wall thickness and type of fittings used
- calculate maximum oil velocity for each fluid line application based on either nominal ID

**Course Outline**

- I. Fluid Line Selection
  - A. Location in System
  - B. Flow Requirements
  - C. Pressure Requirements
  - D. Type Oil Used and Compatibility
  - E. Machine or Application Requirements
    1. Rigid lines
    2. Flexible lines
- II. Fluid Line Installation
  - A. Component Location
  - B. Oil Reservoir Location
  - C. Leak Proof Assembly
  - D. Easily Installed
  - E. Requires Periodic Removal
  - F. Required Structural Supports
    1. Solid clamp
    2. Flexible clamp
  - G. Fittings Used
    1. Bill of Material
  - H. Installation Instructions
    1. Sketches
    2. Drawings
- III. Factors to Consider
  - A. Leak Proof System
    1. Fittings
      - a. type used
      - b. minimize number used
      - c. thread sealant used (if required)
    2. Fluid Line Considerations
      - a. machine vibration
      - b. movement of machine parts
      - c. ambient temperature
  - B. Correct Application
    1. Knowledge of each type of fluid line and its limitations
    2. Interfacing between different types of fluid lines
    3. Fitting selection
    4. Avoid undersizing

- C. Fluid Line Routing (usually no shop drawing)
  - 1. Shop mechanic performs
    - a. layout of fluid lines on machine
    - b. select type of fluid lines used
    - c. develop bill of materials required
- D. Cost and Labor for Fluid Line Installation
  - 1. 25% total system cost
  - 2. Underestimated
- E. Systems Judged On
  - 1. Fluid line installation
    - a. problems
    - b. oil leaks (hard to eliminate)
    - c. total cost
  - 2. Appearance