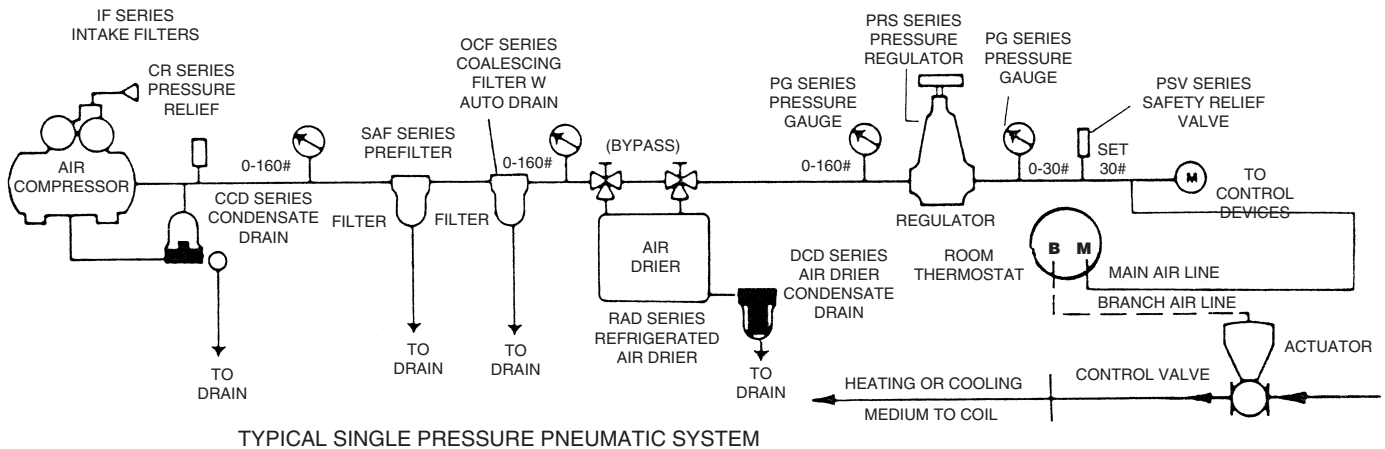


# THE PNEUMATIC AIR SYSTEM

**Compressed Air System Components**  
**Without them, we have no Pneumatic Control!**



**PNEUMATIC AIR SYSTEMS** use compressed air to supply energy for the operation of valves, motors, relays and other pneumatic control equipment. They are made up of the following elements: (1) A source of clean, dry compressed air, (2) a pressure reducing station, (3) Air Lines (called mains), (4) Controlling Instruments; (5) Intermediate devices, (6) Branch lines and (7) Controlled devices.

The atmosphere that surrounds us, especially in urban/industrial areas, contains an astonishing amount of pollutants including water and oil vapors - all of which are ingested into, and concentrated by the air compressor. Pneumatic controls are supersensitive to these contaminants. To assure a degree of reliability at reasonable maintenance costs - only clean, dry, oil free air must be delivered to the control system.

**A brief review of the air system components will help you determine their need in the Pneumatic Air System.**

- ▶ **Air Compressor:** The capacity in Actual Cubic Inches Per Minute (or Actual Cubic Feet Per Minute) should be two to three times the actual system requirement, preferably divided between two compressors or a duplex unit to assure a continuous air supply. Tank size should be large enough to limit operating cycles to less than 10 per hour. This maximizes dwell time in the receiver, reducing compressed air temperature and condensing as much water as possible in the tank before it enters the air system.
- ▶ **Compressor Intake Filter:** Clean air starts here! Compressor filter/silencers should be equipped with replaceable pleated paper (or polyester) elements of about a 10 micron rating, inspected and replaced periodically.
- ▶ **Pre-Filter:** Whether or not an air dryer is used, a particulate filter (not exceeding 3 microns absolute) is recommended to extend the life of the oil removal filter. It must be installed ahead of the air dryer.
- ▶ **Pressure Regulators:** Used to reduce the tank storage pressure (70-90 psi) to the pneumatic main pressure of 25 psi. Models are available in miniature, standard and precision.
- ▶ **Coalescing (Oil Removal) Filter:** A submicronic filter of sufficient capacity for the entire system must be installed when a lubricated air compressor is installed. Coalescing elements will function at full efficiency almost indefinitely if the bulk of particulates has been previously removed. On old pneumatic systems, most air lines are not protected by a system oil removal filter. The coalescing filter will deliver 99% oil free air to a new system but cannot immediately correct a system already contaminated with oil. To protect your controls, install in-line disposable filters (DF114) on all your branch lines.
- ▶ **Dryer, Refrigerated Type:** To insure a completely dry air system drastic reduction of the air temperature is necessary to condense the water vapor in the compressed air. A 35° pipeline dewpoint is normally recommended.
- ▶ **Safety Relief Valves:** One adjustable installed on the compressor tank and one non-adjustable on each air main to protect your controls against 90 psi damage if the pressure regulator fails.