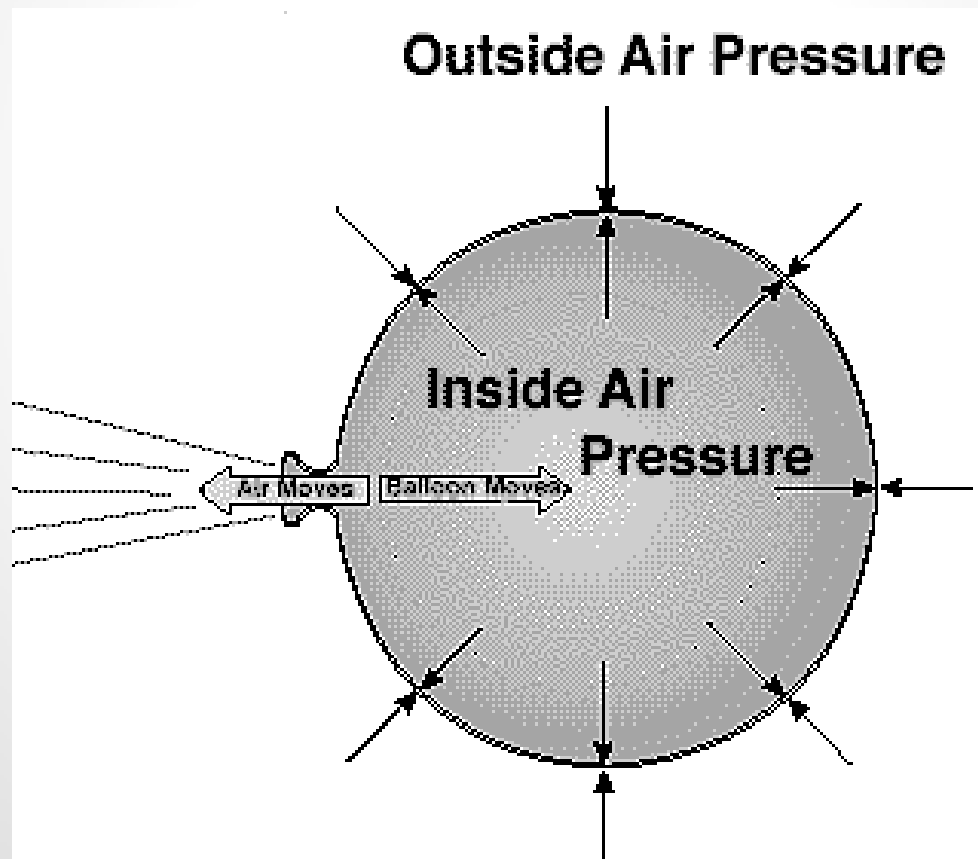


# **Pneumatics**

# Pneumatics

- Using compressed air to get work done.



# Pneumatic vs Hydraulics

- Differences between Hydraulics and pneumatics?
- Hydraulics uses liquid and pneumatics uses air
- Hydraulics have power, pneumatics have speed.
- Safety is different between them.

# Compressor

- Takes air and compresses it which can then be stored or used immediately.



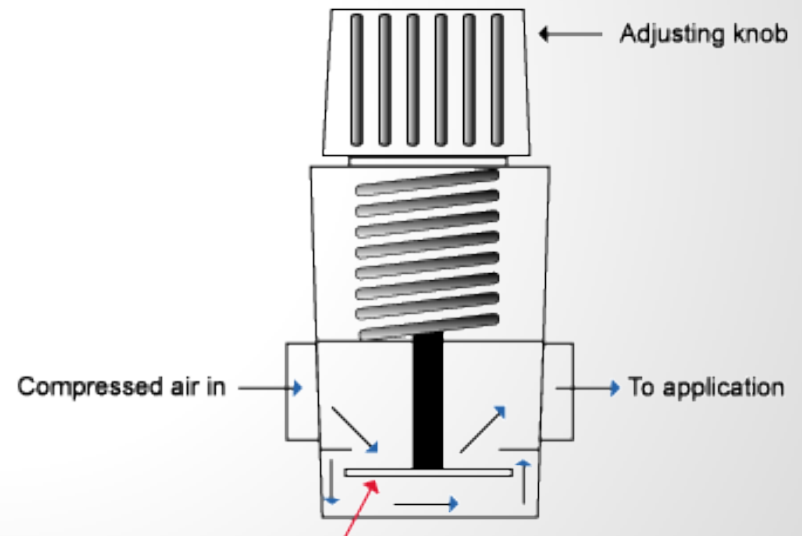
# Accumulator (Air Tank)

- Stores air for later use.



# Air pressure regulator

- Controls what pressure is in the line.



This seal moves up and down, reacting to spring pressure or air pressure as the air supply pressure varies, and the seal moving against or away from the seats, allows more or less air to flow through the regulator. Lessening flow allows pressure to drop, increasing flow allows pressure to rise.

# Air gauge

- Tells the PSI at that point of the line.



# Electric valve

- Controls where the air goes by using a solenoid.





# Pneumatic Cylinders

- Converts the air into linear motion.



# How to Choose your Cylinder

- Speed vs. Power
- Larger diameter for power.
- Smaller diameter for speed.
- Why?



# Rotary Actuator

- Converts pressurized air into rotary motion.



# Tubing

- Used to transfer air between pneumatic components.



# Brass fittings

- Used to transfer air through a rigid structure to components.



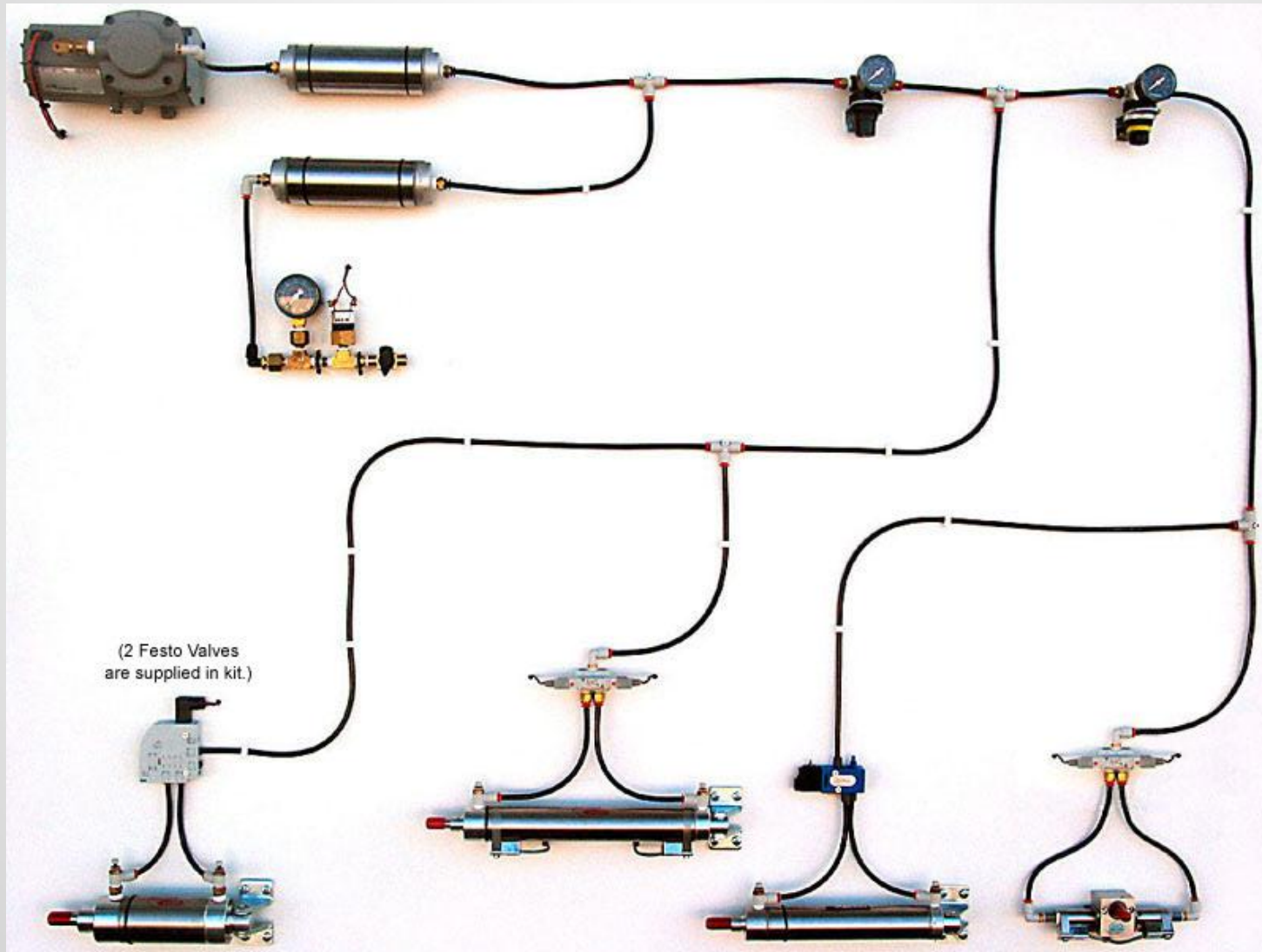
# Teflon Tape

- Wrapped around the threads so that it is sealed when connected.





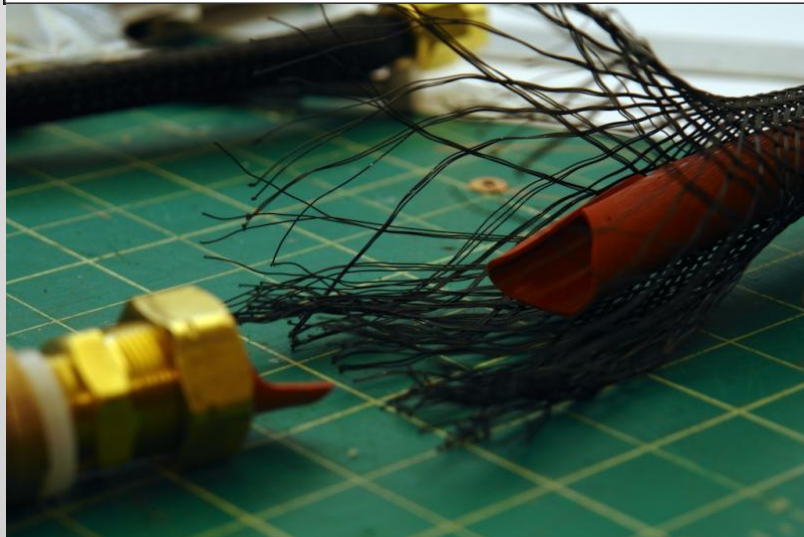
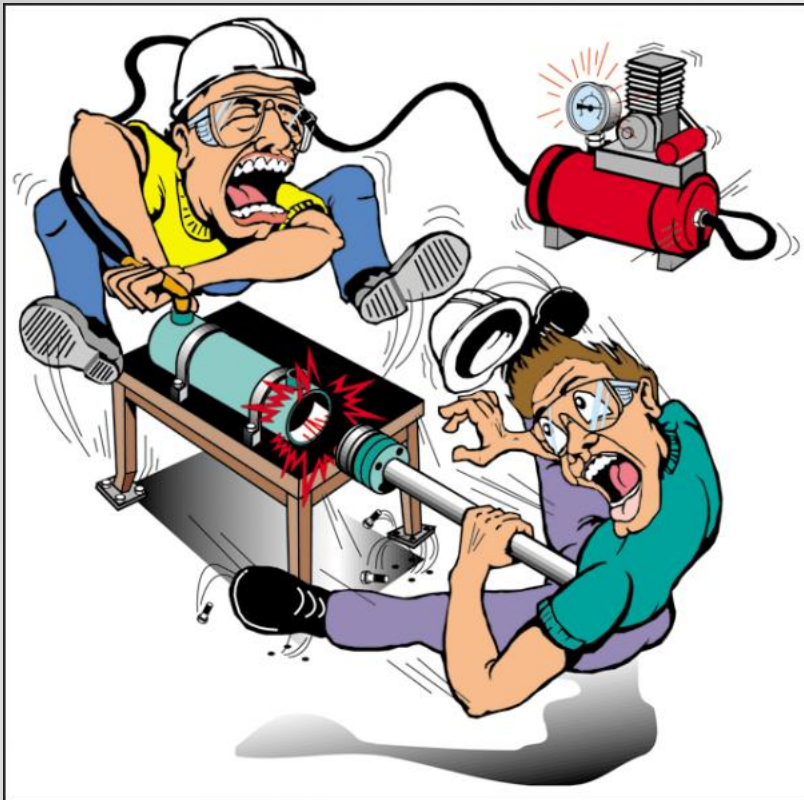
# Putting it all together



# Safety

- Don't exceed the pressure the parts are rated for.
- Keep away from the cylinders when testing.
- Don't use damaged parts or tubing.
- Make sure to have a valve to release excess pressure at the end of use.
- Don't use pointy objects near it when it is pressured.
- Safety glasses.
- Be aware of the compressors temperature.





# FRC Rules

- Maximum stored pressure is 120 PSI.
- Maximum working PSI is 60.
- Parts must have a rating of at least 125 PSI.
- Compressed air on the Robot must come from only one Compressor.



# Pneumatic or Hydraulic?



# Pneumatic or Hydraulic?



# Pneumatic or Hydraulic?



[dreamstime.com](http://dreamstime.com)



Pneumatic or Hydraulic?



# Pneumatic or Hydraulic?

