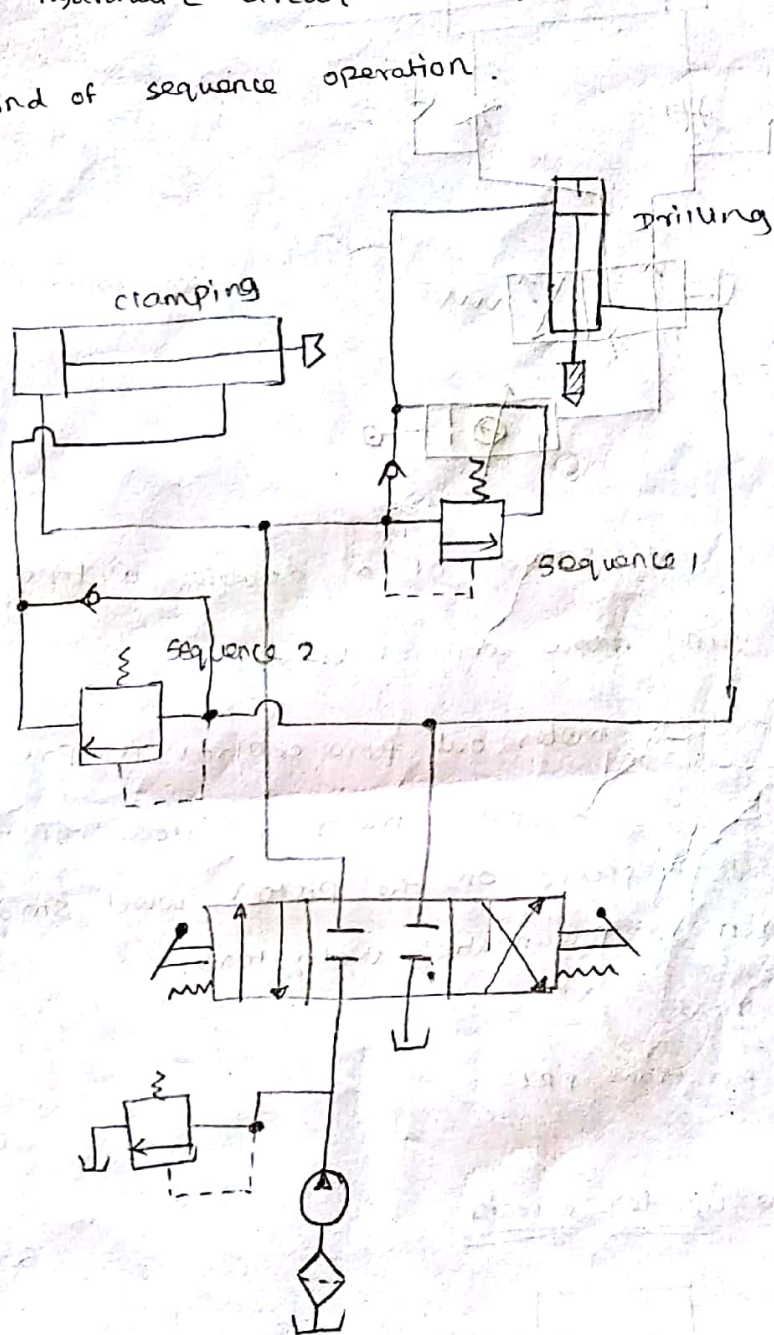


## Circuit with Sequence valve

A hydraulic circuit having two or more cylinders has some kind of sequence operation.

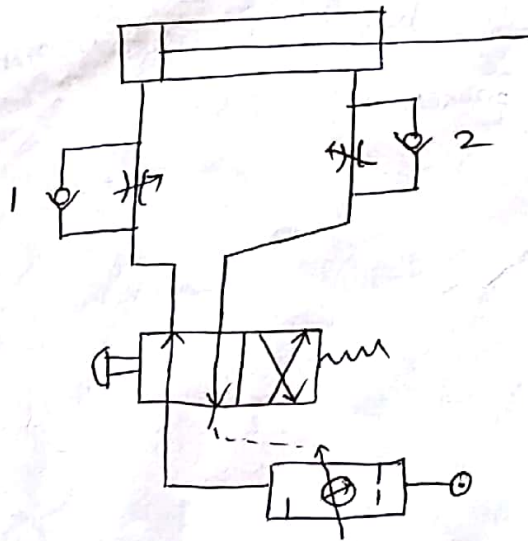


Drilling circuit using sequence valve.

In this circuit, first the clamp cylinder should extend and clamp the workpiece.

Then the work cylinder should extend to drive spindle to drill a hole in the workpiece.

Speed control circuit



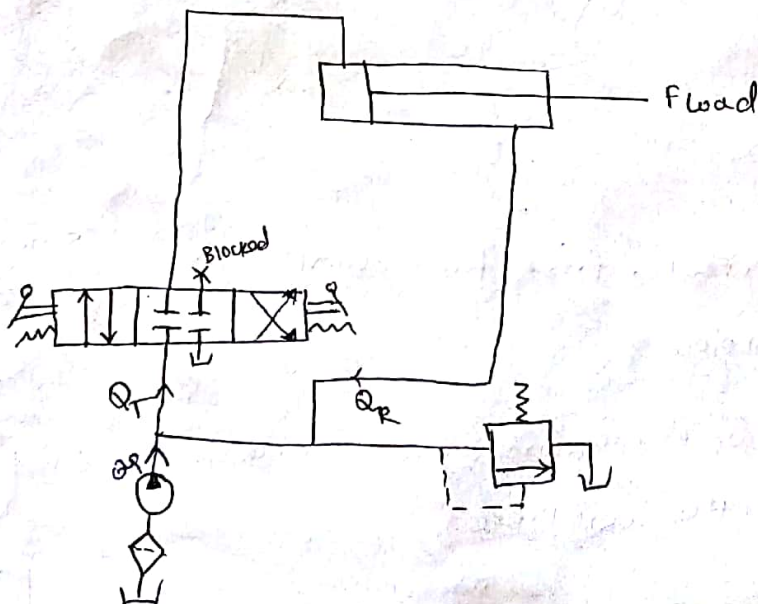
speed control circuit

The motion and speed of a double acting cylinder can be controlled by using flow control valves.

In pneumatics, meter-out flow control is preferred in all situations. This is because meter-out flow control provides a stabilising back pressure on the piston, which smoothes out the jumping motion of pneumatic actuators.

- \* 1/2 DCV
- \* The air from FRL

Regenerative cylinder circuit



$$Q_T = Q_P + Q_R$$

$$Q_P = Q_T - Q_R$$

$$\text{But } Q_T = A_P \times V_{EXT}$$

$$Q_P = (A_P - A_R) \times V_{EXT}$$

$$Q_P = A_R \times V_{EXT}$$

$$V_{EXT} = Q_P / A_R$$

$$V_{RET} = \frac{Q_P}{(A_P - A_R)}$$

$$\frac{V_{EXT}}{V_{RET}} = ?$$