

Monday	-	5	12	19	26
Tuesday	-	6	13	20	27
Wednesday	-	7	14	21	28
Thursday	1	8	15	22	29
Friday	2	9	16	23	30
Saturday	3	10	17	24	31
Sunday	4	11	18	25	-

28 week

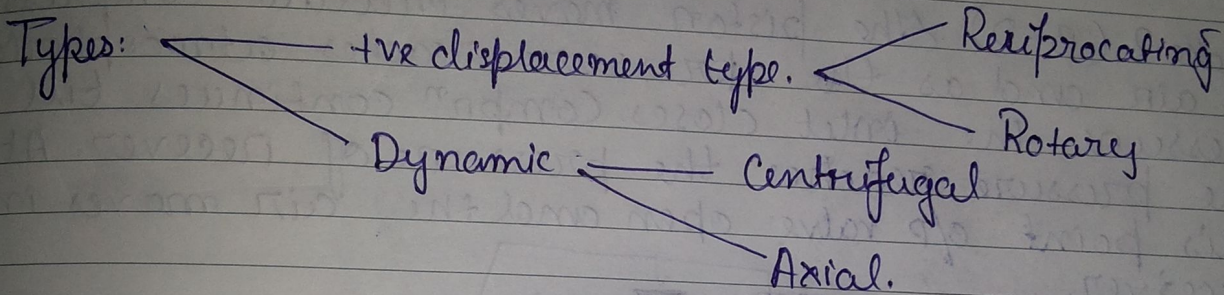
JULY  
Friday

12

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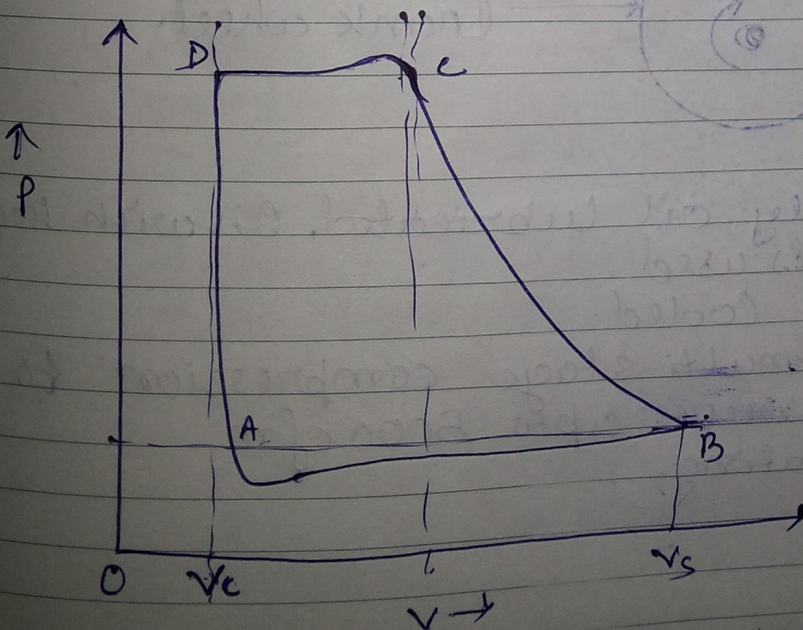
# COMPRESSORS

**Usage:** for pumping compressible fluids eg. air, gases, steam. When pressure rise is above 0.85 bar it is compressor else it is blower.



## Reciprocating Compressor:

- It includes piston type compressor. It can be single acting or double acting.
- It may have more than one piston arranged in various configurations like vertical, horizontal, stepped, V-type, W-type, L-type etc.
- It works on 2 strokes: ~~comp~~ expansion and compression.



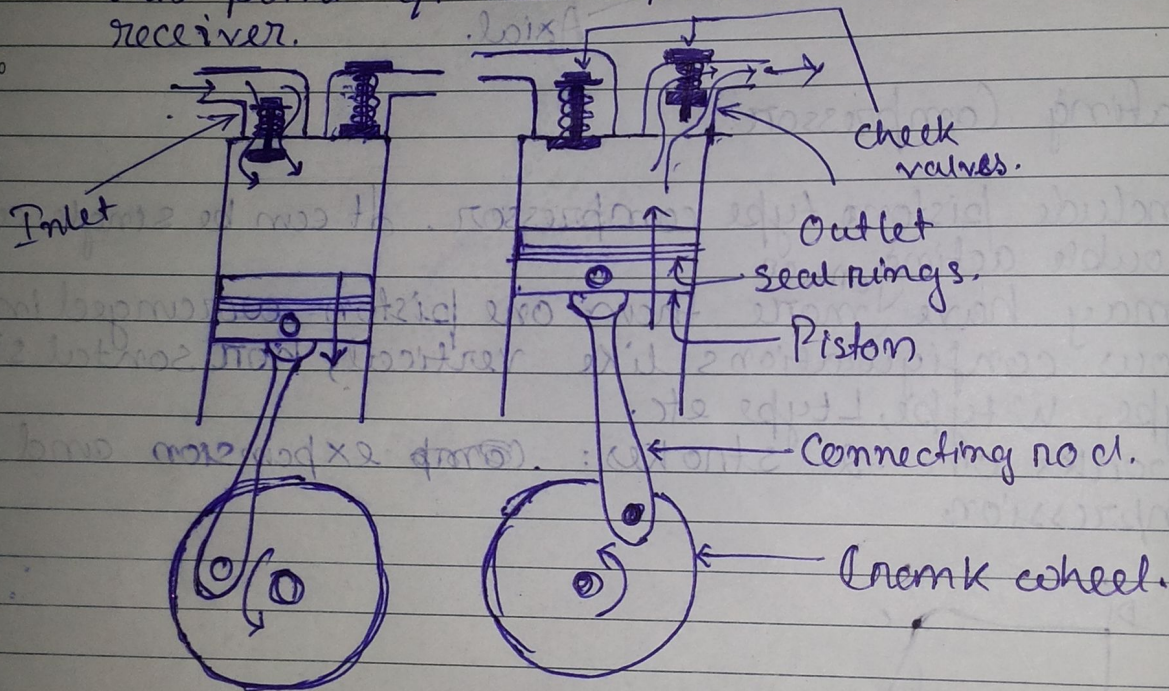


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Stroke 1 (D-B): The piston withdraws causing air clearance vol<sup>m</sup> to expand. This causes drop in pressure and after a definite pressure drop the inlet valve open the air is sucked into the cylinder.

Stroke 2 (B-D): The piston moves inward compressing the air and as the pressure reaches atmospheric the inlet closes. Comp<sup>n</sup> continues till the pressure reaches the pressure of receiver. At this point o/p valve open and the air moves into receiver.



- These are generally oil lubricated. Oil with high flash point temp is used
- Air cooled / water cooled.
- There can be multi stage compression to attain high pressure upto 5000 cfm.
- \* → Discharge is pulsating.



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28 week



JULY  
Sunday

14

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## → Rotary Compressor

→ These have rotors in place of pistons. The output is continuous instead of pulsating. These are used for high speed applications with high throughput (high pressure o/p)

→ Have low capital cost, small size and require less maintenance.

This includes:

- 1) Rotary vane compressor
- 2) Rotary screw type compressor
- 3) Rotary turbine lobe compressor

→ These are air cooled or water cooled. Cooling takes place right inside the compressor so the working parts never experience extreme situation.

## → Centrifugal compressor:

→ Works on the transfer of energy from rotating impeller to air, which is accomplished by changing momentum of air

→ Oil free compressor by design. Oiled parts like gears are separated from compressor by shaft

→ These are water cooled and packaged.

→ The impeller throws the air with high velocity and pressure to the periphery. The air then passes through a diffuser which increases its pressure head and reduces its K.E. head. The process repeats to gain high pressure.



15

15 JULY  
Monday

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29. week

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08:00

09:00

10:00

11:00

12:00

13:00

Lunch

14:00

15:00

16:00

17:00

18:00

19:00

20:00

**Axial Compressor:** In this air flows parallel to the axis of compression. It contains rotating airfoils that increase the K.E. energy of working fluid by applying torque on it, and the stator blade that reduces K.E. and increases the pressure head. It provides a continuous supply.

Intake air filter:

Inter stage cooler:

After cooler:

After dryer:

Moisture drainage traps:

Receivers.

→ Isolate compressor and close out let of receiver.

→ Empty the receiver and piping.

→ Start the compressor and activate the stop switch.

→ Record the time taken to attain operational pressure,  $P_2$  from initial  $P_1$

$$\frac{P_2 - P_1}{P_0} \times \frac{V}{T} \text{ m}^3/\text{min}$$

\*