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**Question:**

Explain the construction and working of doubled acting reciprocating compressor with neat sketch.

**Answer:**

Double acting reciprocating air compressor is similar to double acting reciprocating pump. It is comprised of following parts: 1) Cylinder 2) Piston and piston rod and connecting rod. 3) Crank and crank case 4) Two suction valves and two delivery valves. 5) One inlet port and one outlet port It uses four bar mechanism. There are 4 valves (2 suction valves and 2 delivery valves) shown at A, B, C, D in figure. There are cooling fans similar to single acting compressors. The crank rotates on electric motor/engine/turbine. In this compressor, compression of air takes place on both side of the piston. When crank rotates, the piston starts reciprocating. When piston comes down and attains, 'Bottom dead center piston' the air comes in through port 'A' due to vacuum created due to downward movement. When piston starts moving upward, the air starts compressing. When piston attains, 'Top dead center piston', the stroke is complete and air is fully compressed which goes out through delivery valve 'B' to air

receiver. During this upward movement the vacuum is created on other side (Piston rod side) of piston. Suction valve 'C' opens and air comes in. When piston starting comes down, this air which came through valve 'C', gets compressed and compressed air goes out through delivery valve 'D' to air receiver. In this downward movement air comes in through valve 'A' and entire cycle repeats.

