Reciprocating Compressor Valve Arrangement

For a reciprocating compressor it is important to understand the arrangement of the valves. These are reed type valves that rely on pressure difference to open and close. As the piston goes down it creates a lower pressure below the suction valve and the suction valve is able to flex down and allow suction gas to flow into the cylinder. As the piston travels up on the discharge stroke the pressure increases in the cylinder until it exceeds the pressure on the other side of the discharge valve. At this point the discharge valve flexes up and allows the discharge gas to escape from the cylinder.

The key to these valves is to notice the way that they are hinged in the valve plate. You can see that the suction valve can only flex down and the discharge valve can only flex upwards.