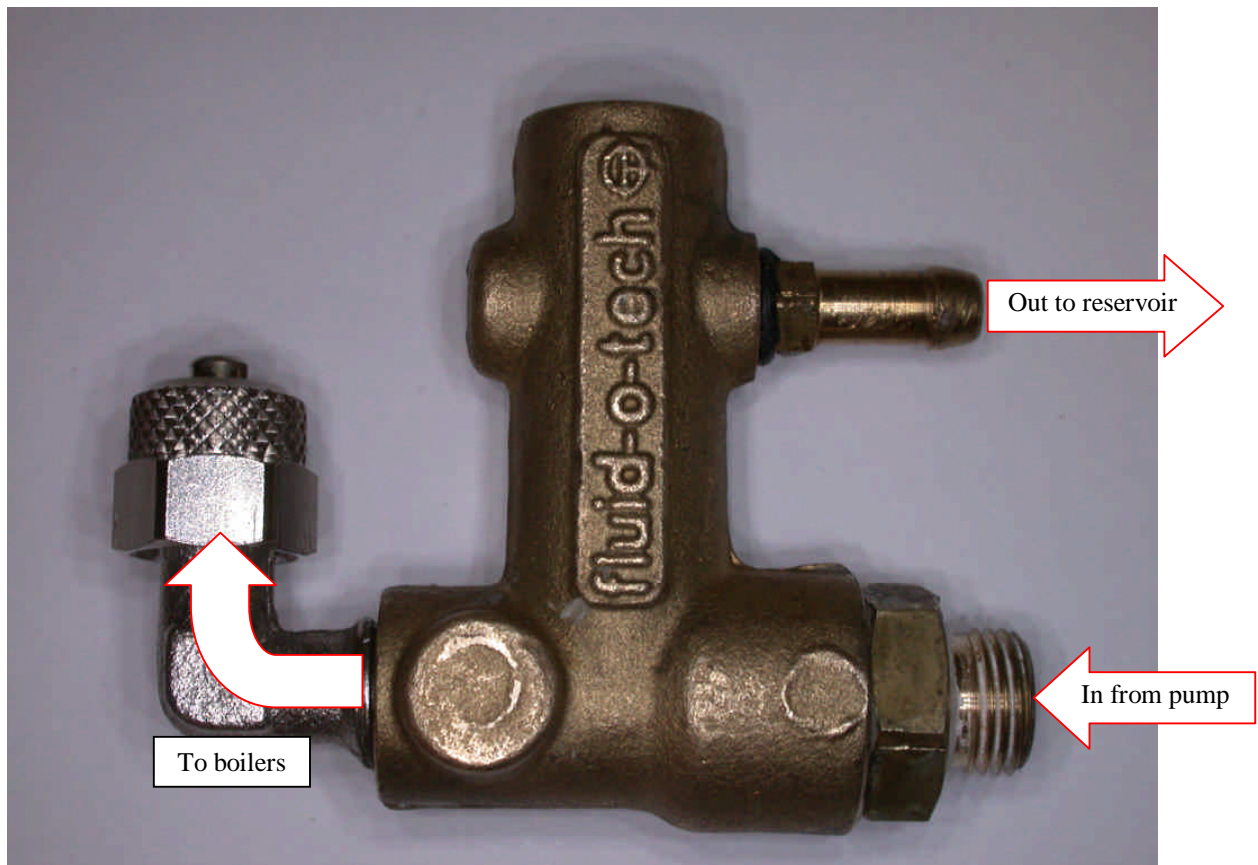


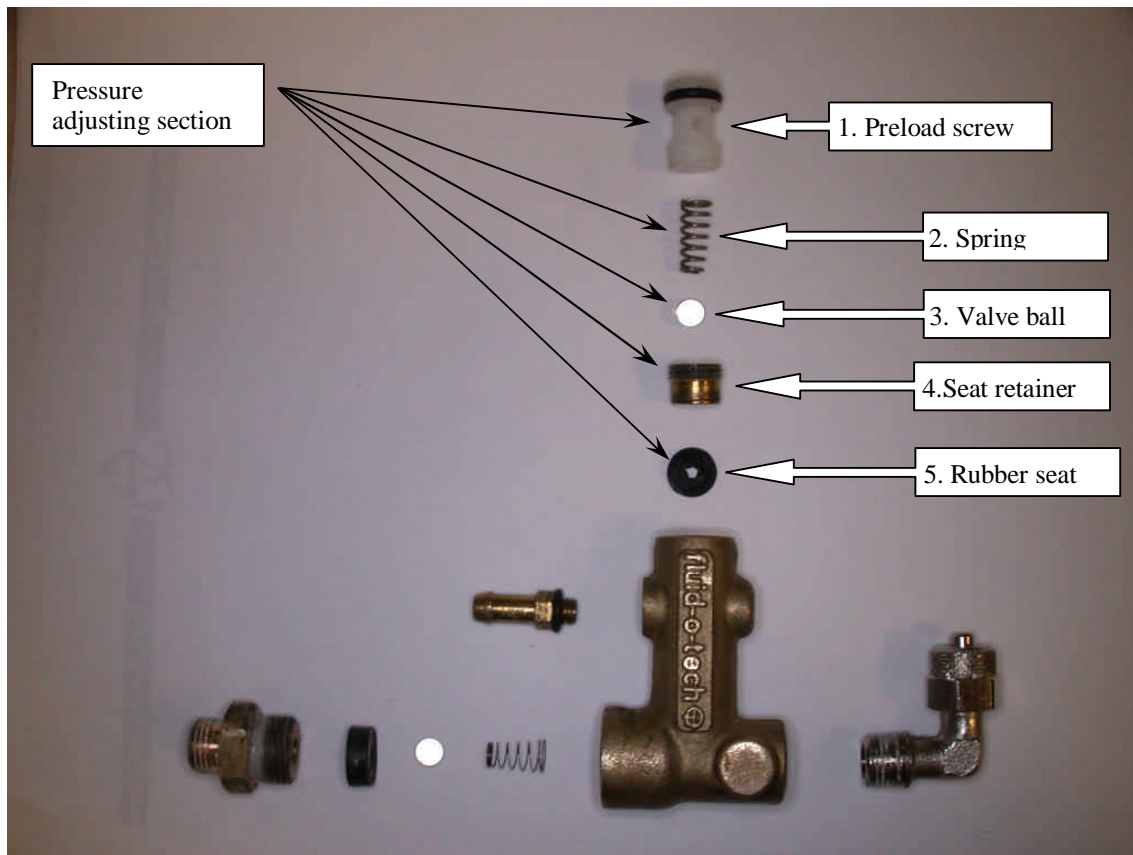
The OPV (Over Pressure Valve)

The OPV is a valve assembly provides pressure regulation for the Vibe pump that lurks in the typical pump type home espresso machine. It regulates pressure output by virtue of a spring loaded pressure relief valve that is user adjustable. The following photos and text illustrate the internal parts and basic operation of the unit.

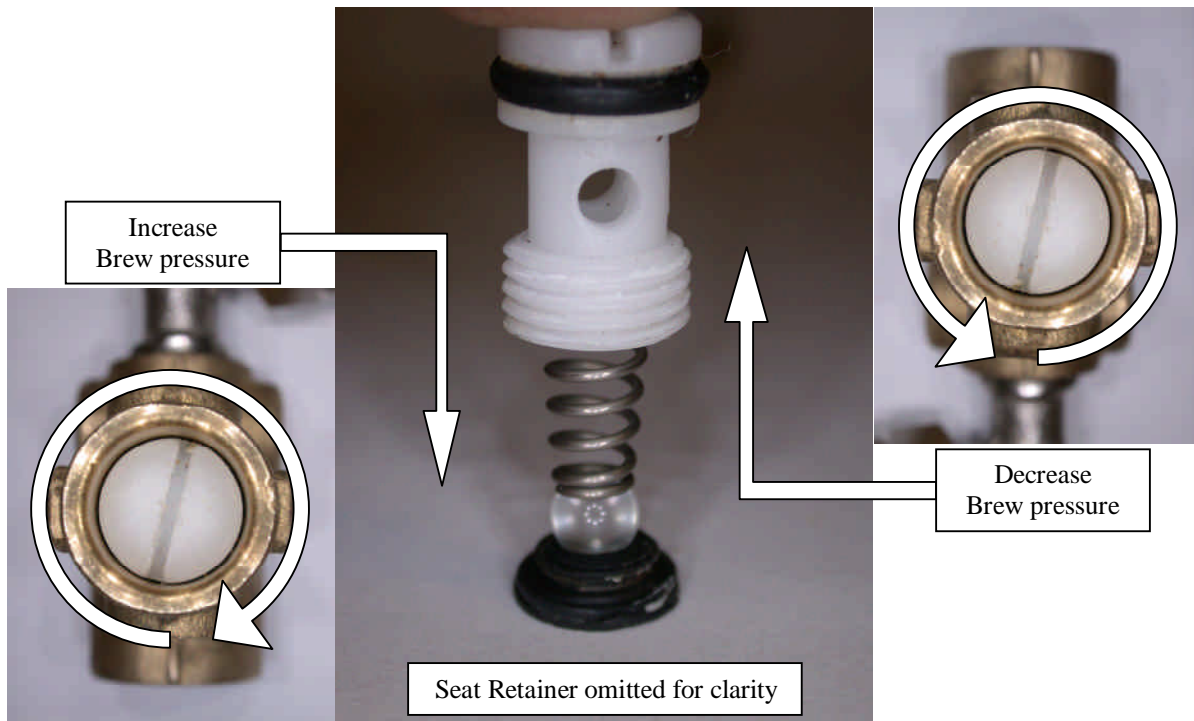


This is the Total assembly as it exists in the Brewtus. The valve is actually screwed directly to the output of either the de-aeration valve or the pump; depending on how your machine is equipped.

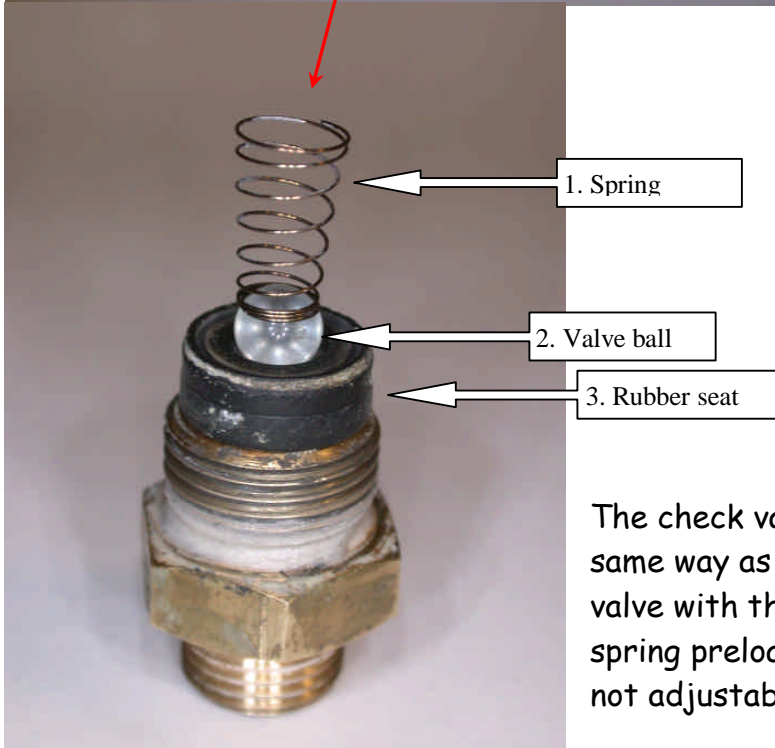
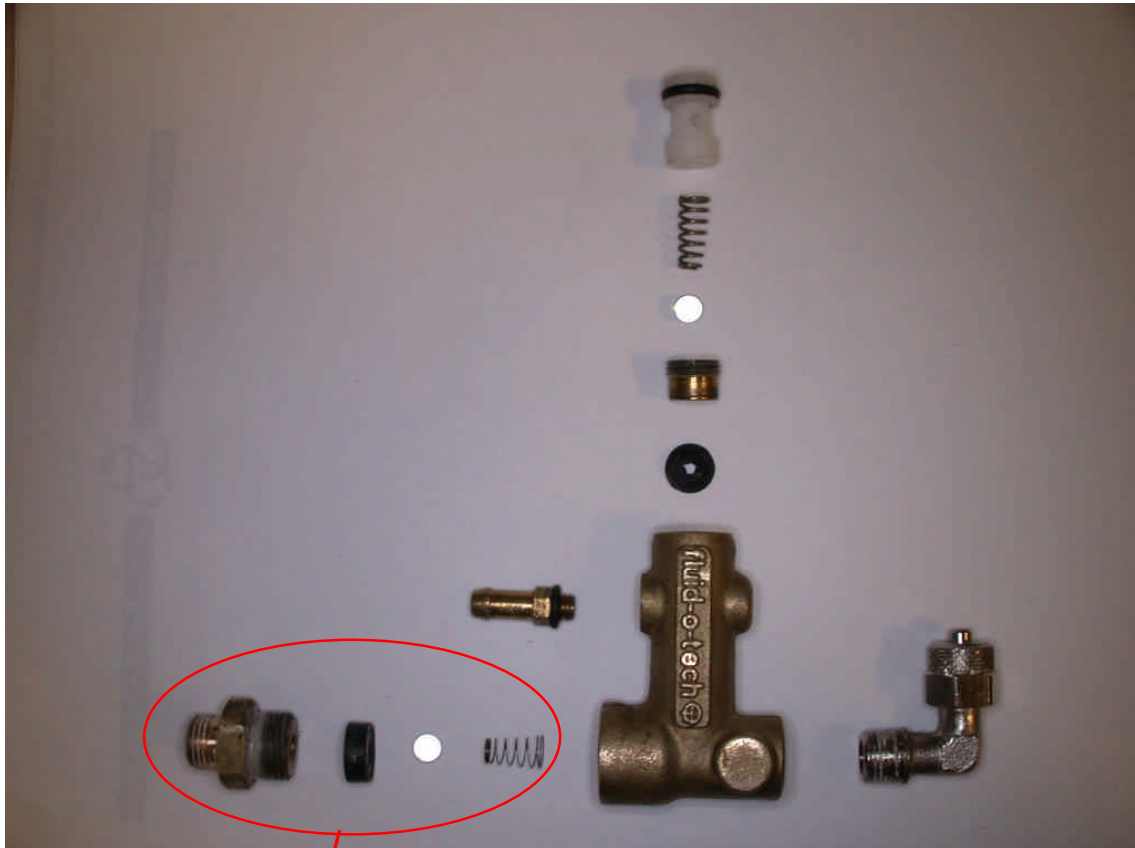
Pressure control-Exploded view



The pressure is adjusted by turning the nylon adjusting screw in the top of the valve. This increases (clockwise) or Decreases (counter-clockwise) the preload on the spring that holds the ball valve against the valve seat. When the water pressure exceeds the preload value (spring force); the ball lifts off the seat and vents water until the water pressure is back below the preload value. This process causes the ball to oscillate up and down many times a second in some cases. This oscillation will sometimes result in noise or “moaning”.



Check valve-Exploded view



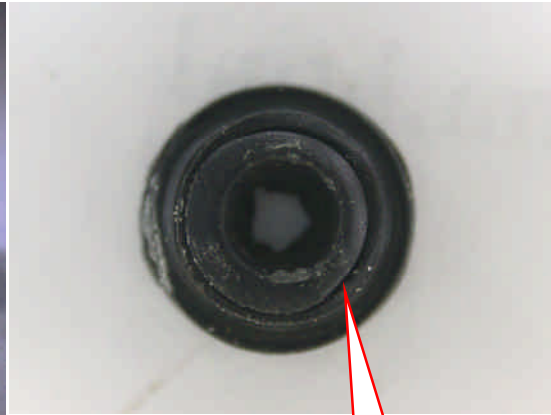
The check valve assembly work the same way as the pressure control valve with the exception that the spring preload is much less and it is not adjustable.

Failure modes

The primary source of failure of the valve is damage, distortion or dirt on the sealing surfaces of the rubber seats. The primary symptom of failure is leak-back into either/both the OPV return line to the reservoir or the De-aeration valve return line. Replacement seats may be difficult to acquire so be careful when disassembling the unit for troubleshooting.

The little valve balls WILL absolutely disappear into another dimension if you drop one on the floor so take this thing apart in a tray or something to catch any parts that drop.

Pressure control seat failures



Distortion:
Leaks all the
time



Dirt:
Intermittent leaks