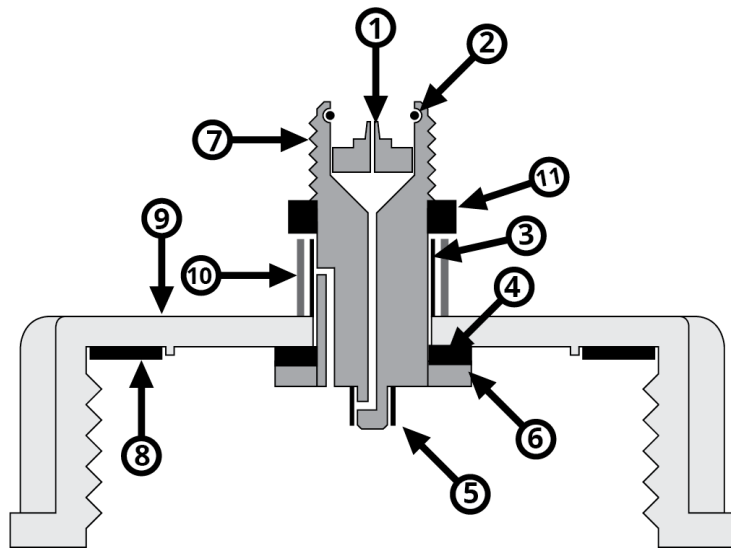


OPERATING THE S30 VALVE AND CHECKING THE PRESSURE BARREL FOR PROBLEMS



- 1: Piercing pin insert
- 2: 'O' ring seal
- 3: Pressure release rubber
- 4: Black valve sealing washer
- 5: Inlet seal rubber
- 6: Base of valve
- 7: Valve body
- 8: Cap 'O' ring
- 9: Cap body
- 10: Stainless collar
- 11: Stainless nut

The S30 Valve is a very simple injection and pressure release valve, engineered for use with a pressure container for dispensing beer and lightly carbonated drinks.

Due to their simple nature, S30 valves rarely go wrong, but if they do, you need to know how they work in order to diagnose the problem. This guide covers the usage of the S30 and basic problem solving. Please note we have a video on our YouTube channel about replacing the rubbers, search for Love Brewing.

The Pressure Release

The pressure release mechanism works by way of the brown rubber band on the topside of the valve, illustrated on the diagram as component No. 3. When pressure in the barrel reaches a certain point, gas will travel up the release tube, and force its way past the rubber band. This will only happen when there is excess pressure in the barrel. The Pressure release rubber is elastic and works by being a tight fit. The pressure is designed to blow off at around 10 pounds per square inch (PSI). This however can vary slightly and as the rubber ages it loses its elasticity and thus its ability to resist pressure. It should therefore be replaced on a regular basis. Also check for any splits or cracks in the rubber.

The Injection System

The Injection of gas is very simple as well. The valve will work using either 8g bulbs or the large S30 cylinder, which is refillable. If the valve doesn't have a piercing pin fitted (No. 1) then you will only be able to use the S30 cylinder. If you have a convertible S30 valve with a piercing pin fitted then this gives you the option of using either the cylinder or the 8g bulbs with black bulb holder.

Using 8g Gas Bulbs

If you are using the 8g gas bulbs then ensure that the pin in the piercing pin insert (No. 1) is pointing upwards. If the pin is pointing downwards (i.e. cannot be seen) then you need to turn the piercing plate insert over. To change this all you need to do is take a needle and remove the 'O' ring (No. 2) from the top of the valve. Turn over the piercing pin insert and then replace the 'O' ring.

Place the bulb in the black bulb holder (narrow part by the opening) and screw it down onto the valve. The 'O' ring (No. 2) will form a seal around the neck of the 8g bulb as the piercing pin breaks the seal on the gas bulb. Please remember that the 8g bulbs are a one time, single use item.

Depending on the valves (many different types have been produced over the years) you need to check that the bulb holder does not bottom on the nut. This will mean it's not able to pierce the bulbs. If this happens take a hacksaw and remove about 15ml from the bottom of the bulb holder.

Using S30 Gas Cylinders

If you are using the S30 cylinder then the piercing pin needs to be removed or pointing downwards. To change this all you need to do is take a needle and remove the 'O' ring (No. 2) from the top of the valve. This might be all you need do depending on the length of the pin in the gas bottle. If it's a short one then you might need to turn over the piercing pin insert and then replace the 'O' ring.

To use the S30 cylinder, screw the canister onto the valve and when you hear the gas coming out of the cylinder screw the canister back to the off position. We should only insert a one second burst of gas at a time and then try our brew. Any more than this could cause the valve to freeze onto the valve (after all we are using liquid CO2 which gets very cold as it depressurises and turns to gas). Again, many different cylinders have been made over the years so you might find you don't need to have the pin holder even placed in the valve. It will work without this.

Both 8g bulbs and S30 Cylinders

The freezing effect of the gas transfer is worth bearing in mind, as sometimes you will get a small build-up of ice behind the Inlet rubber (No. 5). This can cause a slight hissing of gas coming back through the centre of the valve, as the ice prevents it from sealing properly. Just put your finger onto of the valve causing a seal to allow the liquid ice to melt and the Inlet Rubber (No 5.) to reseal onto the inlet pin. The Inlet Rubber (No. 5) should be changed on a regular basis.

We know when gas is needed as the beer will be coming out with little or no head. We definitely don't want air being sucked back into the keg as this risks infecting the beer (gulging noise).

Trouble Shooting

If your pressure barrel is not holding gas, then several areas need to be investigated. **We strongly recommend you check it, make sure it is holding gas before you put any beer inside it.**

The first thing we need to do is check that there was a secondary fermentation. This will be when we have transferred the beer to the barrel and we added some additional sugar, typically 125g of sugar or malt to 23 litres. We then leave it in a warm place for 3-5 days to restart the fermentation. At this point the yeast will convert the sugar into alcohol and give off CO2, which is then trapped in our pressure vessel. This will condition the beer and give the necessary pressure to dispense the beer.

If this has all been done and the barrel is still not holding pressure, then we have several things to look at. The easiest way to diagnose the problem is to half fill the barrel with water and then screw the cap on. Inject some gas and then rotate the barrel in a bath of water. This will then show up any leaks, with any bubbles giving away the location of the leak.

Areas to look for

Leaking bubbles around the tap

The tap is faulty (from the tap itself) and needs replacing.

From the seal where the tap joins the barrel shell

Check the tap has been fully screwed into position. PD barrel doesn't have a backing nut but is tapered. Don't over tighten (so the rubber washer spreads). The tap once in position can be rotated so it's at a 90deg angle. Hold the main body with one hand and rotate the front with the other hand. For the King Keg the washer should be on the outside and the backing nut can be tightened from the inside. Don't tighten by twisting the tap, except at the very end to get it correctly positioned.

Leaking from the cap underneath

Check that the 'o' ring is in position. Make sure the threads of the barrel have a coating of Vaseline. This will help when tightening the cap. Don't get Vaseline over the valve or rubber seals. This will prevent a good seal. Only a small amount should be applied to the cap 'O' ring.

Leaking from the cap where the valve joins

Unscrew the nut from the valve. Check for any rough areas on the cap and smooth off if necessary. Make sure there is no grease on the sealing washer. Tighten with a spanner but don't overtighten. As this will prevent the rubber sealing. If it's spread, it's too tight.

Leaking from the valve

People often assume it's the valve which is faulty but as you can see from the drawing there are no moving parts, and so nothing that can go wrong. Best is the two rubbers (inlet and pressure release) need to be replaced. If the black sealing washer has been over tightened, then this could need replacing.

Leak in the shell

The shell will need to be replaced. Nothing can be done to fix this.

How much gas do we need and when?

The barrels should build up enough pressure from the secondary fermentation to allow you to dispense the whole lot without need for additional gas. So, think of the gas as your insurance. You will need it however if you draw off more than a couple of pints a day. As soon as you lose this head you need to be thinking about adding more. If the beer goes cold then this will have an effect on the gas. Obviously if the secondary fermentation hasn't been good you will need gas, and if you have any problems with the barrel holding the pressure.

One thing to check is when you add the gas there is the small inlet rubber in position at the bottom of the valve. If you are very unlucky (and it's lose fitting) you can blow this out of position (or off the valve) so the barrel won't seal. This is very rare but if it happens unscrew the cap, replace the inlet rubber, screw the cap back on and cover the beer with a blanket of gas.

My barrel is full of beer and not holding pressure

All you can do is transfer to another barrel, transfer to bottles, drink it quickly so you can do a check or keep adding gas until you have finished the beer.

In summary

As you can see from the diagram of the valve, it is a simple design there is very little that can go wrong. If you follow this guide you shouldn't come across any problems that can't be easily fixed in a few minutes. To recap we would strongly recommend that before you do anything you check your barrel by half filling it with water, then gas it and rotate it in a bath of water.