VAPOR GAS EQUIPMENT NZ LTD

Innovative Vaporisers and Gas System Solutions

Algas-SDI

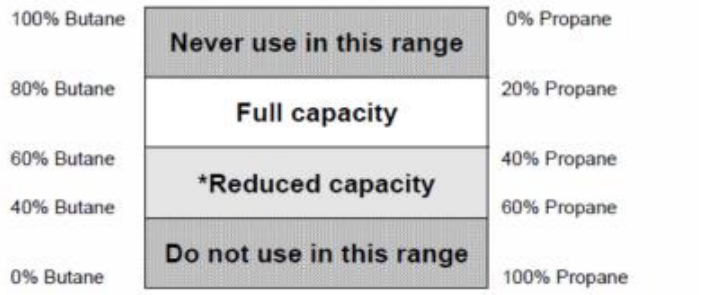
Zimmer Vaporiser Inlet Valve Setup and Servicing in NZ

NZ's variable gas mixes is an issue and always has been, but it was agreed in 2019 to standardise on the 'S' (50:50 Propane/Butane) version (when it was developed for NZ) from the original 'L' version as the 'S' version was better suited to the NZ LPG norms.

In addition the NZ regulation requires the Butane content to always be below 50%.

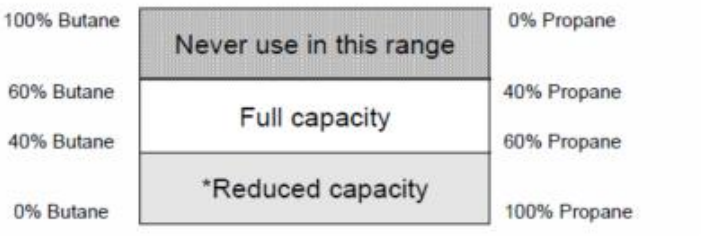
70/30 LPG version (L)

- Full capacity is based on LPG containing 60-80% Butane.
- **Never use LPG which contains more than 80% Butane.**
- Using the LPG version with LPG containing more than 40-60% Propane will decrease the capacity of the vaporizer. *Especially in warmer environments.
- Contact A.S.D.I. for more details.



50/50 LPG version (S)

- Full capacity is based on LPG containing 40-60% Butane.
- **Never use LPG which contains more than 60% Butane.**
- Using the 50/50 version with LPG containing more than 60% Propane will decrease the capacity of the vaporizer. *Especially in warmer environments.
- Contact A.S.D.I. for more details.



The operator and the service personnel are not aware of the gas mix being delivered at any particular time. This is outside their control as it is the Gas Suppliers / Importers who can affect the mixture being sold at any time.

The MOST CRITICAL factors are the "Never use in this range" areas.

Hence:

- 'L' version vaporisers perform best when butane is between 60-80% which is illegal in NZ, and has reduced capacity in the 40-60% Butane range. Given that 50% butane is the maximum allowable proportion this makes the 'L' Inlet Valve sub-optimal. Further when Propane is above 60% (very common) the manual states "Do not use in this range".

- 'S' version vaporisers perform optimally (with the 'S' variant Inlet Valve) allowing full capacity in the 50-60% propane range, and only reducing capacity should the propane levels be higher periodically.

The above was the rationale for the decision to standardise on the 'S' version, and is supported currently since 2019.

Technical reasoning for this:

The actuator measures the pressure at the inlet of the vaporiser and the temperature at the outlet. It requires the temperature of the outlet of the vaporiser to see a minimum of 8 degrees Celsius above the saturation temperature of the pressure of the product at the inlet of the vaporiser before the valve will open and allow flow through the vaporizer. If the temperature at the outlet of the vaporiser drops below the 8 degrees Celsius requirement, the valve closes.

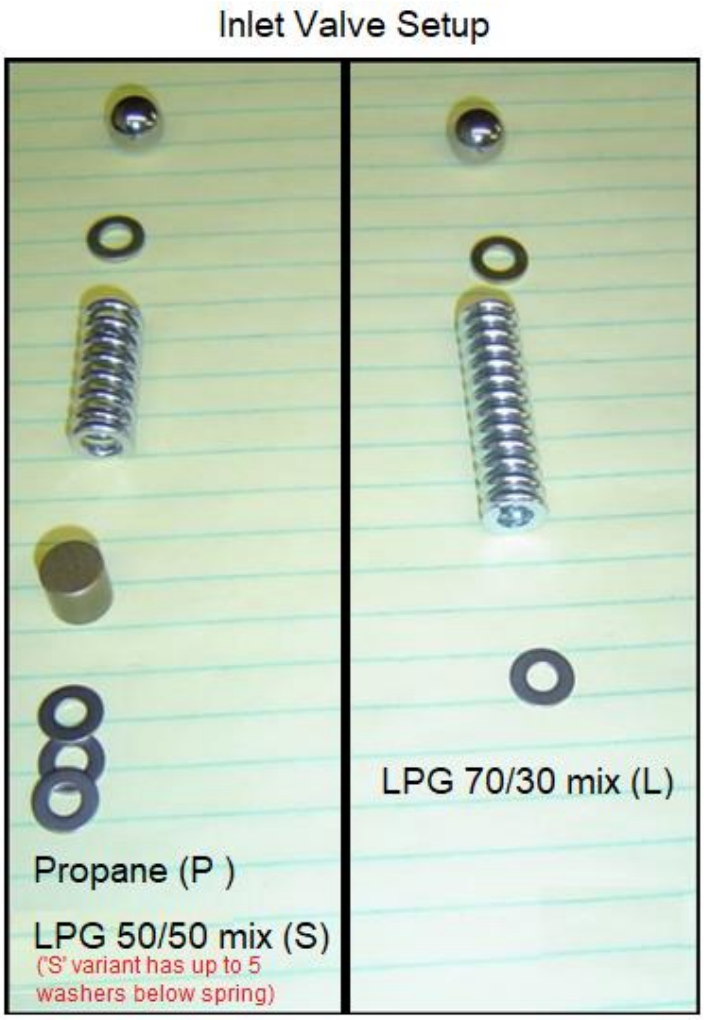
When using an "L" model ZIMMER, more butane than 80% causes a chance of liquid bypass if the power were to go out (not an issue in NZ since we do not use LPG with such high butane mixtures), while less butane (more propane) would cause a de-rate but not a hazardous situation (liquid carryover). More butane in your gas increases your boiling point and the gas pressure would be low enough that the pressure in the power head would cause the valve to always stay open even with no heat applied to the bulb. This is why the chart indicates "never use in this range".

Less butane (more propane) it would require more heat to increase the pressure in the power head enough to overcome the higher gas pressure and open the bulb. This means when more propane is applied the issue becomes that the valve may not open and they could see a de-rate. This is why the chart says "do not use in the range" (so this causes inefficiency buy NOT a hazard situation.)

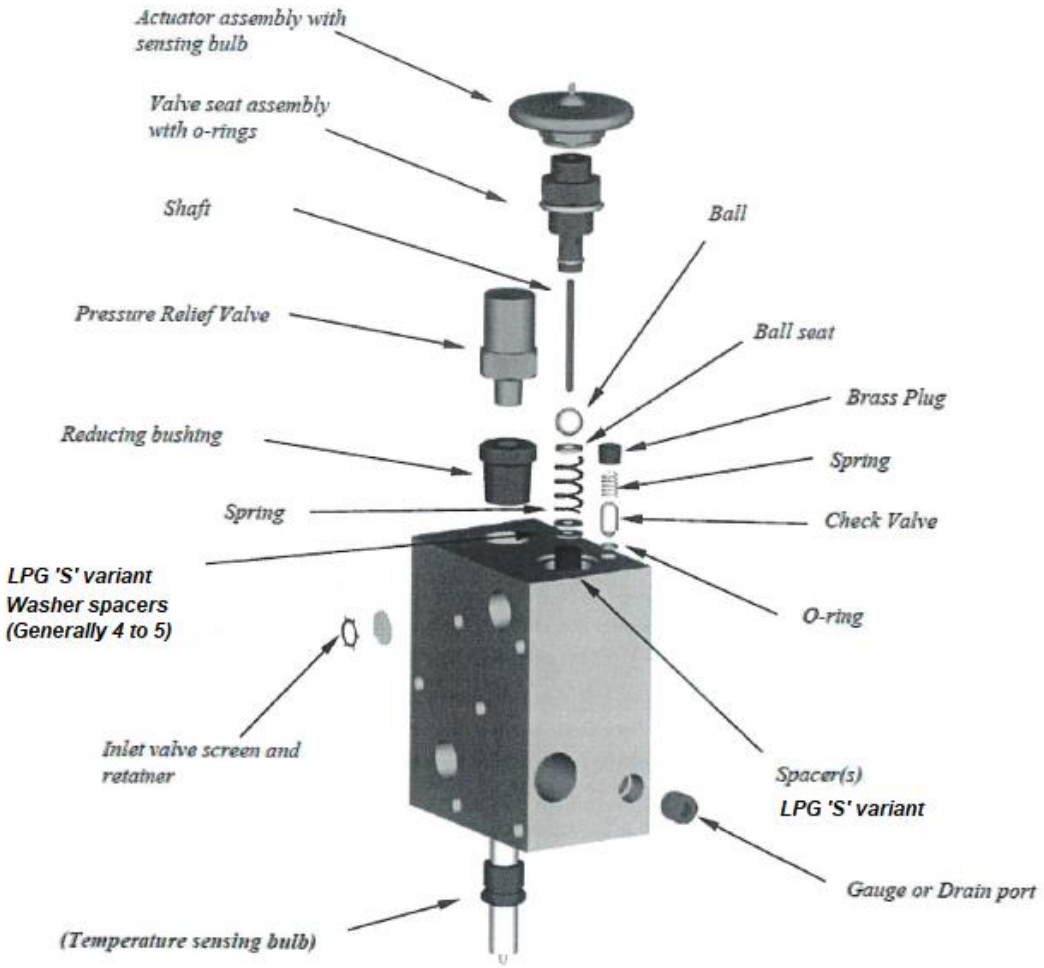
Thus any older Zimmer vaporisers with the original 'L' version Inlet Valve Block setup may experience inefficient vapour delivery with high propane mixes in the LPG. This is why NZ changed to the 'S' 50:50 mix model which will allow for better efficiency of operation with higher propane mixes. Hence NZ has two versions of the older Zimmer I Series - the 'L' and 'S' models.

Please ensure that the correct Inlet Valve Kit is used to service the ‘L’ and ‘S’ models respectively. The Inlet Valve Rebuild kits cannot be interchanged.

Model Zimmer I	‘L’ model	‘S’ model
Inlet Valve Block	#40545 (with the LPG 70/30 mix setup)	#41052 (with the LPG 50/50 mix setup)
Inlet Valve Rebuild Kit	#40540	#40530
Valve Actuator Kit	#40425	#40561



A blow up of the ‘S’ version Inlet Valve Block & Inlet Valve Setup - see below.



Inlet Valve Detail

The service kit for the ‘S’ version valve block is the **40530 Inlet Valve Kit** (used with the **40561 Zimmer I Actuator Kit).**