

## **CO2 Valve Burst Disc Note - Version 1.1**

December 2005

Dear Customer,

Thank you for purchasing the Arrow Precision valve. We believe that it is one of the highest quality valves on the market and should provide you with many years of trouble free service.

This valve is for use with seamless aluminum cylinders used to store compressed carbon dioxide gas for use in paintball guns.

This valve has been manufactured using the highest quality materials. we have followed the British Standards Institution's BS341 (Transportable gas container valves Part 1) section 5.1 to 5.7 relating to Manufacture and Workmanship. Information on this can found at [www.bsi-global.com](http://www.bsi-global.com)

The burst disc cap is set at our factory for correct operation of the pressure relief device. You must be a competent person to make any changes or disassemble the valve assembly in any way. Serious injury may result if you are not sure what you are doing.

If you are a competent person and have the correct tools for the job, you may inspect or change the burst disc. In either case both the copper sealing washer (if fitted) and the disc must be replaced. Always use Arrow-Precision Ltd supplied parts, failure to do so may result in incorrect functioning of the safety device and possible serious injury.

***The burst disc cap is torqued (using a calibrated torque wrench) into the valve body to 72 in/lbs.***

***The valve assembly is torqued into the co<sup>2</sup> cylinder to 35ft/lbs.*** Be sure to use an approved thread locking compound and check the "O" ring is suitable for the cylinder the valve is being fitted to. Always fill cylinders gradually to avoid pressure surge or impulse that result in premature disc failure.

### **The "PIN VALVE"**

The valves are inspected at each stage of manufacture, all threads are checked using ISO approved thread gauges. On assembly, each valve is individually leak tested. The valves are also fitted with a safety device.

The safety device, or burst disc as it sometimes known consists of a retaining cap and frangible disc (copper washer if fitted) which is designed to rupture at a pre-determined pressure. For co<sup>2</sup> (Carbon dioxide) this is between 180 to 200 BAR. This prevents over-pressurisation of the cylinder as the contents vent to atmosphere as the disc ruptures.

Both the ON OFF valve and the PIN VALVE have been modified to improve safety in regard to reported "screw off" incidents within the industry. This can happen when the bottle is unscrewed from the paintball marker and instead of the astm thread releasing in the normal manner, the 5/8th unf bottle thread starts to undo. This, if the user has not noticed what is happening, can result in the bottle detaching from the valve and becoming a projectile fuelled by the release of the remaining co<sup>2</sup>. The longer bottle thread of these Arrow-Precision safety valves is to allow many more turns before the aforementioned scenario can take place. Also there are two milled channels to allow gas to start escaping so relieving any

pressure that may cause the bottle to become a projectile. Hopefully it would also alert the user to situation before an incident by the releasing gas.

In accordance with the United Kingdom Health and Safety Executive regulations (Pressure Systems and Transportable Gas Containers No.2169, 1989), any person who supplies any article for use in a pressure system, is required to ensure that all repairs are conducted such that they do not give rise to danger or otherwise impair the operation of any protective device in the system.

If you are unsure of how to repair or maintain your valve, or if you have any technical questions on the design of this product, then please contact us.

Arrow Precision Limited

**NOTE:** Please note that Arrow Precision replacement burst disc components are not approved for use in any other manufacturers valve. Arrow-Precision cannot be held responsible for injury resulting from this or any self assembly of components.