

The aim is to empty the compressed air from the internal bladder to the external bladder. This whole structure is submerged upright under water to 100m depth. At one end is a rigid pressure vessel containing an inflatable bladder connected by a rigid tube to an external inflatable bladder with 1500m³ inflatable capacity.

At the start of the process the internal bladder contains 471m³ of compressed air at 145 psi and the external bladder has 109m³ with an ambient at 145psi. A separated air pocket of compressed air is in the rigid pressure vessel containing a volume of 53m³ at 145psi.

Any remaining air in the internal bladder can be removed by temporarily expanding the external bladder and controlling the flow through the valve.. A line of permanent magnets rotates around an area across the circumference of the external bladder with a total lifting force of 500 tons. The line of magnets require no power and the magnetic path is controlled remotely by an on/off switch. Once the bladder inflates to the initial equilibrium of a volume of 109m³ and enters into the activated magnetic field, the permanent magnets attract and stretch the inflatable bladder. This process can be repeated several times by re-aligning the magnetic strip and stretching the external bladder until the internal bladder is emptied. From the initial calculations the radius of the external bladder must be increased by a minimum of 2.17m to attain a volume of 579m³. A similar controlled magnetic mechanism can be used inside the pressure vessel to repel the internal bladder to assist in deflation.

If the external bladder stretches by an extra 4m (radius) for example, then the volume of the external bladder will increase from 109m3 to 1418m3. This causes the total internal volume between the two bladders to increase to 471m3 + 1418m3 = 1889m3. Since the compressed air in the system was initially at 145 psi it will now expand to occupy more space and the pressure will drop to 44.5 psi between the two bladders. The magnetic mechanism is only used to expand the external bladder temporarily, and once the valve is closed between the bladders and the external bladder is released to the ambient it will contract back to 145 psi. A pressure difference is created and the internal bladder obviously now is maintained at 44.5psi.