

Design Innovation Plastics

My project is the redesign of a sport diver's SCUBA tank in polymer. I have used Ansys 14 for FEA outputs to aid my design process. The mesh chosen was automated by Ansys, this was because more refined meshes would not solve.

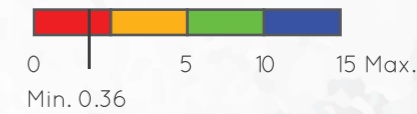
Criteria:

- Sports divers travel to a depth of 35m. New tank needs to withstand the 3.55 MPa pressure applied at this depth.
- The final design is to be blow moulded.
- Out perform the LAL100 Aluminium tank in 3 key tests: Safety Factor, Total Deformation and Equivalent Stress.

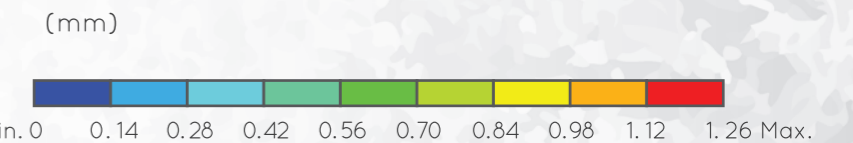
Aluminium 6061 - T6



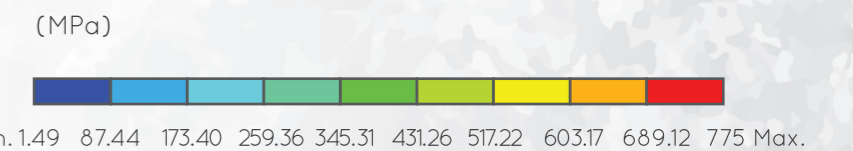
Safety Factor



Total Deformation



Equivalent Stress (Von Mises)



Aluminium 6061 - T6

Tensile Yield Strength	276	MPa
Modulus of Elasticity	68.9	GPa
Poisson's Ratio	0.33	
Density	2.7	g/cc

LAL100

Capacity	2.78	m ³	Thickness	13.5	mm
Max. Pressure	22.75	MPa	Weight	15.18	kg
Height	665.48	mm			
Max. Width	203.20	mm			

