**CALCULATIONS FOR LIFT PRESSURE**

***STEP 1***

Weight Force in Newtons: F=m x g = 2kg x 9.81 m/s2

**F≈ 19,62 N**

* Force acting under the surface:  
  Hole: 45mm x 15mm, Surface: 292mm x 415mm  
  So,   
   A≈ (0.292 x 0.415) – (0.045 x 0.015)

**A≈ 0.120505m2**

* Pressure needed in order to lift the hovercraft is:  
    
   **P**≈ ≈ ≈ **162.81 Pa** or (N/m2)

***STEP 2***

A centrifugal fan will be used for the lift.  


* Dynamic Pressure:  
   Q= ½ x ρ x v2 where: ρ= Air density (Kg/m3)  
   v= Fluid velocity (m/s)

We know: ρ= 1.225 kg/m3 & v≈2.29 m/s. We know the velocity from the graph provided from the company’s data sheet. In order to produce high pressure, the velocity has to be under 2.3 m/s.

Therefore, Q= ½ x 1.225 x (2.29)2

**Q= 3.21 Pa**

* Total Pressure produced from the centrifugal fan:  
   Pt= PD + PS   
   **Pt= 176.94 Pa at 2.29 m/s air flow**.  
    
   PS= Static Pressure (at 2.29m/s) = 173.73 Pa

