

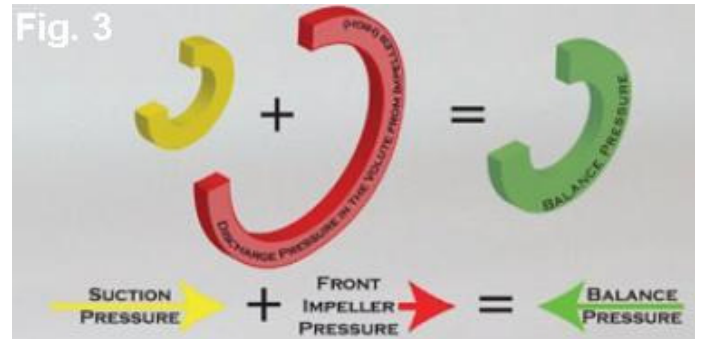
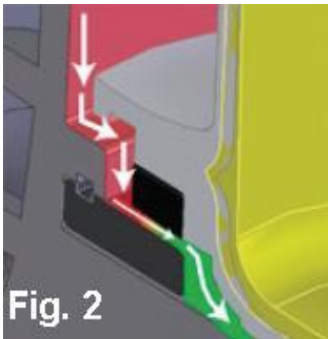
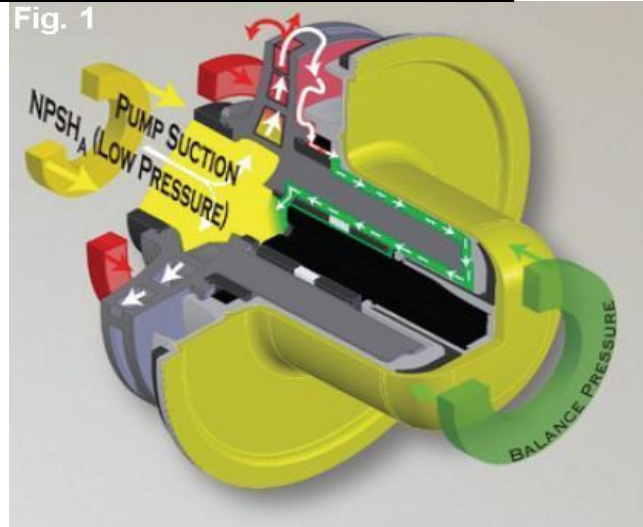
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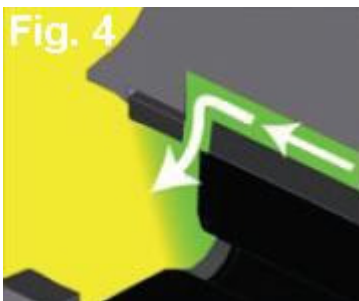
THRUST BALANCING EXPLAINED

Fig. 1 is showing what Innomag created and patented. The **white** arrows show the path that some of your liquid takes when it goes through the TB-mag pump. The idea to keep in mind at all times is that **high** pressure (colored **red**) will always find **low** (colored **yellow**). A good example is a balloon that you blow up and let go of. The air comes out because the pressure inside the balloon is higher than outside. *Fig. 1* shows that the **suction** side of the pump has the lowest pressure. The **discharge** will have the highest pressure. When the arrows are followed, the path traveled is: liquid enters the **suction** of the pump and the center of the impeller. The impeller then centrifugally creates pressure with the liquid (**red** colored area). As the pump housing is filled with the pressurized liquid, some of the liquid will go around to the back side of the impeller and pass through the back **clearance ring** set (see *Fig. 2*).



This area is fixed and creates a constant, restricting pressure drop (**red color** changing to **green color**). From here, the liquid will pass over the impeller (the magnet assembly) and go around to the impeller back end (**balancing pressure**). At this point, it will travel through the center of the impeller (**green area** again) and find the **suction** (the low pressure area). Why? **High pressure** will always **go to low pressure** (just like the balloon)!

Looking at *Fig. 3* we find that a way to trust balance the impeller is to simply combine the suction pressure and the pressure on the front of the impeller to go against the pressure (and thrust) from the back of the impeller (the **green area**). If the impeller moves forward due to thrust (see *Fig. 4*)



An opening controlled by the impeller becomes larger and allows more liquid to leave the **green area**, directly lowering the thrust and pressure. If too much thrust or pressure is lost, the impeller will move backward, closing the opening (see *Fig. 5*) causing the pressure or thrust in the **green area** to directly increase against the suction and front impeller pressure.

