

# Encapsulated Magneto Hydrodynamic Drive Practical Implementation of Magneto Hydrodynamics Using Encapsulated Fluids



Scott R. Kempshall, President/CEO  
1191 Darlington Oak Dr. NE  
Saint Petersburg, FL. 33703  
727-510-4532

[Scott.Kempshall@hyalta.com](mailto:Scott.Kempshall@hyalta.com)  
[www.HyALTA.com](http://www.HyALTA.com)



## **Silent Propulsion**

HyALTA Aeronautics has (provisional) patent rights on this transformational fluid propulsion system. The design combines high efficiency and simplicity to deliver a silent drive system for maritime craft. In addition, the patent covers multiple additional applications for highly tailored fluid movement applications in bioengineering and chemical processing.

Hydrodynamic Drive (MHD) concept provides nearly silent propulsion for submersible vehicles with no moving parts. Magneto hydrodynamic drive or MHD accelerator is a method for propelling vehicles using only electric and magnetic fields with no moving parts, accelerating an electrically conductive propellant (liquid or gas) with magnetohydrodynamics. The fluid is directed to the rear of a propulsion tube and as a reaction, the vehicle accelerates forward.

The first studies examining MHD in the field of marine propulsion date back to the early 1960s. Few large-scale working prototypes have been built, as marine MHD propulsion remains impractical due to its low efficiency, limited by the low electrical conductivity of seawater. Increasing current density is limited by Joule heating and water electrolysis in the vicinity of electrodes, and increasing the magnetic field strength is limited by the cost, size and weight (as well as technological limitations) of electromagnets and the power available to feed them. This situation is worse in fresh water or air.

The present invention solves the efficiency problem by encapsulating a highly ionizable



fluid within a flexible membrane that is surrounded by a rigid tube. The exterior rigid tubes is wrapped in electromagnetic coils. When a coil is energized, it attracts the ionized fluid, causing a bulge in the flexible inner sleeve resulting in a constriction of the effective tube diameter. By energizing subsequent electro magnets, this constriction moves to the desired exit end of the propulsion tube. The result is that the environmental fluid is propelled out of the tube with the result of tube acceleration in the direction opposite of the energizing of the electromagnetics. By reputedly energizing the sequenced electromagnets, propulsion of a body through the fluid can be attained.

HyALTA Aeronautics, LLC is a small veteran owned business with concept development, program management and product development expertise. Partnerships with three major Universities (UCF, USF, CU and UVA) combines our agile development skills with the academic power and technical savvy of major University systems.

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