

The development of high power batteries for underwater vehicles

조장현*, 공영경, 김석수, 허태욱, 허재현, 최유송
국방과학연구소
(jhcho100@yahoo.co.kr*)

A great development was achieved in electrical propulsion systems for underwater vehicles. The electrical propulsion systems are becoming to have a higher energy density and greater capability. The already developed electrical propulsion systems being used from 1950s to 2000s for underwater vehicles are Zn/AgO, Mg/AgCl and classical Lead-acid batteries. However, the already developed battery systems with low power energy density do not meet the required characteristics on condition that underwater vehicles need higher velocity in a short time.

It is known that new version of Zn/AgO, Al/AgO, Li-ion, Fuel-cell batteries are fitted for the underwater vehicles propulsion. Especially, For torpedo propulsion, Zn/AgO and Al/AgO batteries are suitable because these batteries have the characteristics of high power density than other batteries. Al/AgO battery have been developed for the purpose of torpedo propulsion in 10 years and be using for sea trials until now.

New developed Al/AgO battery systems(130Wh/kg) are improved the power energy density about 3~4 times than those of the Lead-acid battery systems(30~40Wh/kg).