

Miniaturized Reserve Battery

Diehl & Eagle Picher (D&EP), a German-American joint venture, develop and produce activatable thermal batteries for defence applications and customized battery packs for both the defence and civil market. More than 10 years ago D&EP furthermore began to design and manufacture lithium reserve batteries for applications in proximity, time and multifunction fuzes used for mortar, artillery and naval gun ammunition.

The lithium thionylchloride system (Li/SOCl_2) for Reserve Batteries stands out due to extremely high energy density.



D&EP Lithium-Thionylchloride-Reserve Battery family for use in electronic fuzes (photo: D&EP)

In 2013 D&EP has started a new development for a well-known European manufacturer in the field of defense in order to minimize the size of Li/SOCl_2 reserve batteries in response to the trend towards more efficient and less energy requiring fuzes in the medium caliber sector.

The new design has been realized in a 11 x 11 mm cylindrical stainless steel container. As implemented in actual designs, a glass ampoule filled with electrolyte (SOCl_2) is located in the center of the battery case, which is broken depending on the respective system acceleration.

By releasing the electrolyte and wetting the battery cells the battery becomes “active” and sets its energy free.

Due to this technology the batteries are maintenance-free, feature a long shelf life and high reliability. Furthermore the batteries can be used even in extreme temperature ranges between -46°C to $+63^\circ\text{C}$.



D&EP Miniaturized Lithium-Thionylchloride-Reserve Battery (photo: D&EP)

The miniaturized batteries are designed for applications with high g-accelerations, with and without spin.

Main advantages are high capacities due on account of the Li/SOCl_2 technology, rapid voltage rise under load and fast activation time.

Diehl & Eagle Picher is a most flexible partner corresponding to various customer demands due to different modular design possibilities of our batteries.

Therefore these minimized batteries are perfect to deliver energy for fuzes used in medium/large caliber ammunition for rocket and grenade weapons.