

PlastPack Defence

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PPD (PlastPack Defence)

PPD founded in January 2012, is a small and innovative Danish company specialising in defence industry packaging, especially ammunition, in terms of weight, cube and production/material technologies. PPD was founded by four people with a combined experience of more than 30 years in plastic and paper packaging/optimisation, and more than ten years in the defence industry. This experience led to the idea of developing a lightweight ammunition case.

PPD's team spent the previous year analysing the market, trends, end-user requirements, logistics, competition, structure and potential optimisation possibilities, and production and material technologies. The co-founder and CEO Jan Engmann based his MBA on these analyses which then formed the business plan for PPD.

PPD presented the idea to the Danish Ministry of Science, who decided to support PPD in its first year to reach the proof-of-concept level. This was done in co-operation with the Danish Technological Institute in Copenhagen.

As part of an offset requirement, PPD acquired its first contract, worth €31m, in summer 2013 with Nammo AS in Norway. The ten-year contract is to develop the first ever Lightweight Ammunitions Case® (LWAC) M2A1 replacement and is followed by a ten-year sales and marketing co-operation agreement.

LWAC, with its innovative design and solutions, is a true game changer. The weight compared to the old steel M2A1 is reduced by 68% (for every one million rounds of 12.7mm (.50cal) ammunition the total weight reduction is 16.5 tonnes). This results in less fuel consumption and more rounds on the same pallets within the same weight level, reducing the number of pallets transported and stored by one in every ten.

The LWAC M2A1 is now at its end of the development phase and is UN approved for the handling, transporting and storage of ammunition, and will go into production Q1-2016. The strategy has been global from the beginning and the LWAC is already under evaluation by the MoDs of the UK, the US, Singapore, UAE, Denmark and Norway.

PPD's strategy is to develop a full range of LWAC models covering small, medium and large calibre small arms and artillery and mortar grenades, with a total of 15-20 new LWACs over the next five to six years, reaching sales of €57m per year.



PLAST PACK DEFENCE (PPD) JOINING THE DOTS OF LOGISTICS

PPD's world-leading Lightweight Ammunition Case (LWAC) is 68% lighter than existing ammunition boxes. This reduction enables fresh logistic and operational thinking and capabilities.

Logistics, the mastery of which wins wars, is a mass of conflicting requirements. Each requirement can be represented by a dot. The dots represent weight, volume, capacity, management and environment. Joining them forms the complete moving image, but often they don't connect or move in unison. Operationally, it's more the clarity of the image rather than its substance that emerges.

War winning logistics it might be, but it's also an operation's Achilles' heel. Unarmed trucks, aircraft and ships carrying supplies, more frequently ammunition than anything else, present easily engaged targets, which can delay and disrupt the moving image. Protecting them is expensive in diverted resources and materiel. Iraq and Afghanistan brought armoured logistics trucks, but reducing the numbers of trucks/targets also reduces logistics vulnerability.

The purchasing, storage, maintenance and movement of supplies, i.e. the Integrated Logistic Support (ILS) (or whole life cost), is expensive. Because of safety issues, ammunition is a major user of logistic and ILS effort. This is expensive, and reducing ammunition's demand on logistic effort and cost must be a good thing.

Logistics is about what is being carried and how it is being carried. Given that small arms ammunition is unlikely to change in weight or volume (together density). Tackling how it is carried offers a way of reducing the density of the rounds carried.

This is where PPD and LWAC come in. LWAC at 0.77kg is 68% (1.63kg) lighter than the M2A1 (2.40kg), the most common steel box designed in 1942 and still in use.

This bold statement might not seem much on paper, but try saying that to an infantryman loading up for a 96-hour mission. Then try multiplying it to represent logistic loads for each pallet, truck, aircraft or ship. Start with the fact that it represents a 10% weight/density saving (cases plus ammunition) on each case of ammunition and the results are astonishing.

Had LWAC been available in 2012, that 10% saving would have allowed the Danish Armed Forces to have used eight fewer C-130 flights per year hauling small arms ammunition to theatre. That would have saved €1.14m at 2012 prices plus airframe hours, etc. The saving on 'in-theatre transport' has not been calculated, but would have presented 10% fewer ammunition trucks and crew targets.

The environmental costs are equally startling. Those eight flights represent 461 tonnes of CO₂, and the trucks yet more. Operationally, increases in combat power

are as astounding. The use of LWAC *versus* steel saves over 100kg in a typical infantry combat vehicle load, with commensurate savings on helicopters, the most weight sensitive platform of all.

These savings could be used for more ammunition or fuel. Increased fuel allows longer missions, greater availability and reduced need for logistic fuel tankers.

The mounting savings include the considerable 'in and post service' costs of treating infantrymen with damaged knees, ankles and backs caused by overloading. Not to mention finding replacements for them on operations to maintain force levels.

The material change enables new thinking and more savings. Because they are plastic, and yes they are as sturdy, cost the same and fulfil all the same functions as their 74-year-old predecessors, LWACs have RFID tags inbuilt, allowing real-time location and content tracking and traceability. For role identification, LWACs are coloured or transparent with coloured tops to allow visual content counting and enabling new thinking and savings in management, storage and stock reduction. What could you do with the unused ammunition stores?

The more you think about changing to a modern patented design, the savings and other benefits multiply, as a number of savvy defence ministries have found.



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