

10 September 2013

Modular Propelling Charge System by Rheinmetall – enhancing the firepower of artillery

Thanks to its indirect fire capability, artillery remains indispensable in modern combat operations, even in asymmetric conflicts. The precision and firepower of cannon artillery offer a wide array of operational possibilities, ranging from a show of force in the form of a few well-targeted warning shots to the use of special smoke/obscurant ammunition for screening the movements of friendly forces – and from blocking off key areas of terrain to breaking up enemy infantry formations and destroying high-value enemy assets.

At DSEI 2013 Rheinmetall is presenting its artillery Modular Propelling Charge System (MPCS), which significantly enhances the firepower of modern artillery forces.

This bi-modular charge system was qualified into service with the German Bundeswehr in 1996 as the DM72 high zone module and the DM82 low zone module. With the increased operational temperature requirement for +63°C, the performance of the high zone module was extended from +52°C to +63°C, making it safe to use throughout the entire temperature range –46°C to +63°C. The improved version of the high zone module is designated DM92. The modular charge is now qualified for use in climatic zone A1.

The modules were developed and qualified for use in all NATO standard 39 and 52 calibre gun configurations with associated projectiles in accordance with the Joint Ballistic Memorandum of Understanding (JBMoU). Furthermore, it offers excellent insensitive munition (IM) properties and extreme ballistic stability. With extended range (ER) projectiles the effective range of 155mm guns can be increased to more than 40 km.

The modular charge system is now in service with numerous countries including NATO members France, Germany, Greece, Italy, the Netherlands, Norway and Turkey. Furthermore, it is now in qualification with other export customers. More than 1.5 million modules have been produced and fielded to date, including in Afghanistan.

Because zone 5 in a 39-calibre howitzer does not completely exploit the available chamber volume, Rheinmetall Nitrochemie has developed a half-module utilizing this volume to gain additional performance.

The muzzle velocity is increased by +35 m/s while remaining within the system pressure budget. This equates to an additional range increase of +1.5 km.

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