

D. Sc. Zygmunt PANKOWSKI
D. Sc.. Mariusz MAGIER
M. Sc. Tadeusz KUŚNIERZ
Military Institute of Armament Technology

120 MM POLISH AMMUNITION FOR LEOPARD 2A4

At the beginning of 21's century Polish Land Forces received from Germany over 100 battle tanks Leopard 2A4. The Military Institute of Armament Technology took action to develop ammunition family. At 2005 y. the first 120 mm training subcalibre rounds was delivered to the Army.

1. Introduction



Fig. 1. LEOPARD's 2A4 in service in Polish Land Forces.

Following its experience in the development of the 125 mm combat and training ammunition Military Institute of Armament Technology and BUMAR Group Corporation developed the new family of the 120 mm tank ammunition for polish tanks LEOPARD 2A4.

On the first step was developed and involved to production the 120 mm training ammunition: APFSDS-T-TP and HE-TP fixed rounds.

Table 1. Main characteristics of the 120 mm tank ammunition family.

	APFSDS-T-TP	APFSDS-T	HE-TP	HE
Muzzle velocity (m/s)	1715	1650	950	950
Weight of the projectile (kg)	4,8	6,6	19	19
Weight of the propellant (kg)	7,4	8,2	5,7	5,7
Length of complete round (mm)	920	920	980	980
Chamber pressure (MPa)	412	490	353	353
Standard deviation (mils)	0,2	0,2	0,3	0,3
Status	On production	Prototype	Ready to production	Prototype

2. 120 mm APFSDS-T-TP projectile

The 120 mm APFSDS-T-TP projectile assembly is secured to the Combustible Cartridge Case (CCC). The CCC has steel case base with a rubber sealing ring around the top.

The projectile assembly consists of the steel rod with the pierced tailcone. The tailcone is used for stabilization and for range decreasing the projectile during flight. The maximum range with the elevation of the gun about 10 ° is not more than 7000 m. The steel penetrator is carried by aluminum three-parts sabot which is discarding once the projectile has left the gun muzzle. Sabot obturation is achieved by using nylon band.

The propellant consists of the powders produced by polish factory. For ignition the propellant in all types of 120 mm rounds is used GUW-7 electrical primer. The CCC's for all types of 120 mm rounds are imported from Germany.



2. Fig. 120 mm APFSDS-T-TP projectile.



3. Fig. The dispersion of the 120 mm APFSDS-T-TP projectiles at 1000 m.

3. 120 mm APFSDS-T projectile

The 120 mm APFSDS-T projectile assembly is secured to the Combustible Cartridge Case (CCC). The CCC has steel case base with a rubber sealing ring around the top.

The projectile assembly consists of the tungsten heavy rod with the steel fin assembly. The penetrator is carried by aluminum three-parts sabot which is discarding once the projectile has left the gun muzzle. Sabot obturation is achieved by using nylon band.

The propellant consists of the powders imported from Germany and the powders produced by polish factory. Penetration performance has been certified as 500 mm Rolled Homogenous Armour (RHA) at 2000 m.



4. Fig. 120 mm APFSDS-T projectile.

4. 120 mm HE-TP projectile

The 120 mm HE-TP projectile assembly is secured, like in the previously type of round, to the Combustible Cartridge Case (CCC). The steel-bodied projectile have boat tail and based thread into a slender curved steel extension assembly with four forward-folding steel fins which snap out once the projectile has left the gun muzzle. The projectile contains non-explosive material with the some amount of the blast-smoke pyrotechnics and is fitted with nose-mounted detonating fuse. The projectile

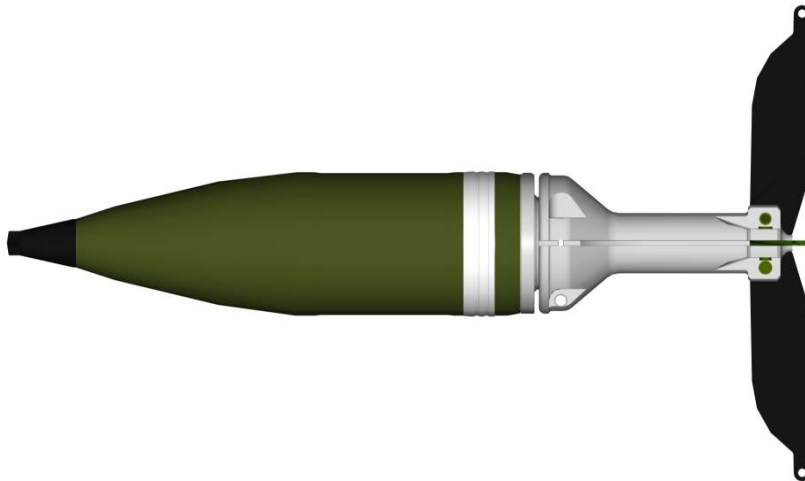
obturation is achieved by using nylon band. The propellant consists of the powders produced by polish factory.



5. Fig. 120 mm HE-TP round.

5. 120 mm HE projectile

The 120 mm HE projectile assembly is secured, like in the previously type of round, to the Combustible Cartridge Case (CCC). The steel-bodied projectile have boat tail and based thread into a slender curved steel extension assembly with four forward-folding steel fins which snap out once the projectile has left the gun muzzle. The projectile contains the 2,3 kg of TNT and is fitted with nose-mounted detonating fuse. The projectile obturation is achieved by using nylon band. The propellant consists of the powders produced by polish factory.



6. Fig. 120 mm HE projectile.

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Streszczenie

W referacie zaprezentowano rodzinę opracowanej w WITU nowej 120 mm amunicji do czołgów LEOPARD 2A4 występujących na uzbrojeniu WP. Omówiono konstrukcje naboju z pociskami:

- ćwiczebnym podkalibrowym APFSDS-T-TP,
- bojowym podkalibrowym APFSDS-T,
- ćwiczebnym odłamkowo-burzącym HE-TP,
- bojowym odłamkowo-burzącym HE.