



Tunguska-M1

The Tunguska-M1 self-propelled anti-aircraft gun/missile (SPAAGM) system is designed to defend Land Forces' units in all types of warfare and small installations against low-altitude air threats and also engage light-armored ground and surface targets. It can destroy targets at a range of up to 10 km and is especially effective in defeating attack helicopters before they reach the line where they use guided weapons.

The Tunguska-M1 is based on the 2S6M1 self-propelled anti-aircraft (AA) mount. All its combat assets are mounted on a tracked chassis that ensures high maneuverability on the battlefield and firing from unprepared positions.

The SPAAGM system carries eight 9M311-1M surface-to-air missiles (SAM) in the container launchers and two twin-barrel 30mm 2A38M1 AA automatic cannons (with 1,904 rounds). The system comprises target acquisition and tracking radars, identification friend-or-foe interrogator, digital computer and electro-optical (EO) systems, communications, navigation and life-support equipment.

The Tunguska-M1 has the following main features:

- autonomous combat use;
- all-round radar air surveillance from a stationary position and on the move;
- capability of engaging air targets successively or separately by the missile and artillery armament;
- artillery armament can be employed when the vehicle is in a stationary position and on the move, day and night, in any weather; missiles can be launched from a stationary position or from a short halt;
- use of an original rod-type warhead in the missile that ensures high target kill effectiveness.

Unlike its foreign counterparts, the Tunguska-M1 features unique mobility and survivability, a high kill probability against air and ground targets and can operate autonomously or as part of an Air Defence grouping.

At Customer request, the acquisition area may be increased in altitude and a night EO target tracking channel may be added.

Main characteristics:

- Engagement envelope, km:
 - missile armament:
 - range: 2,5 to 10,0
 - altitude: 0,015 to 3,5
 - artillery armament:



- range: 0,2 to 4,0
- altitude: 0 to 3,0
- Engagement range of ground target, km: $\pm 2,0$
- Max target speed, m/s: ± 500
- Reaction time, s: 10
- Ammunition load, pcs:
 - missiles: 8
 - rounds: 1904
- Average SAM flight speed, m/s: 600
- SAM guidance system: SACLOS, radio command with optical link
- Вес контейнера с ЗУР / стартовый вес ракеты, кг: 60,0 / 45
- Weight, kg:
 - SAM container: 60
 - missile launch: 45
 - warhead: 9
- Warhead type: rod + fragmentation
- SAM fuze type: contact + active
- AA cannon caliber, mm: 30
- Rate of fire by twin-barrel AA automatic cannons, rounds/min: ± 5000
- Max speed, km/h:
 - hard road: 65
 - soil road: 40





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