



STRELA-2M

Man-portable short range air defense missile system



PURPOSE:

The lightweight man-portable anti-aircraft missile set represents a combat part of the lightweight portable anti-aircraft missile system. In addition to the combat part, the system also includes technical maintenance equipment containing the test station, as well as the instruction and training equipment. The lightweight portable anti-aircraft missile set is intended for annihilation of flow-flying targets in receding and approaching courses, in the visual visibility conditions. The set is intended for engagement of stationary and manoeuvring targets.

The basic mode of set action consists of launching the missile against all kinds of aircraft and helicopters in receding courses and flying at the speed of up to 950 km/h. Launching in approaching courses is done only against the helicopter and air-screw driven aircraft flying at the speed of up to 550 km/h.

The missile launching is performed from the shoulder in standing (Fig.1), or kneeling position (Fig.2).

The set permits firing from trenches, as well as from amphibians on the water, marshlands, from buildings roofs, moving armoured carriers, railway car platforms, and tanks moving across a flat terrain at the speeds lower than 20 km/h, and also from ships and vehicles on the move or in the course of a short stop. The set is also intended for launching of missiles in cases where the anti-aircraft operator is forced to use personal ABC protective equipment.

In the marching position, the set is carried on the back with the aid of a carrying harness.

TACTICAL AND TECHNICAL CHARACTERISTICS:

The set has the following characteristics

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| • Maximum target engagement height | from 500 to 2300 m |
| • Minimum target engagement height | 50 m |
| • Maximum range of target engagement in receding courses | 4200 m |
| • Maximum range of target engagement in approaching courses | 2800 m |

Speed of targets that can be engaged:

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| - Firing in receding courses | up to 260 m/s (950 km/h) |
| - Firing in approaching courses | up to 150 m/s (550 km/h) |
| • Mass of the set in the deployed condition | 14.5 kg |
| • Mass of the set in the marching condition | 15.8 kg |
| • Deployment time | 10 s at the most |
| • Set reaction time (after switching to the mode of the ground power supply) | 5 s at the most |
| • Range of operating temperatures | from -40 C to + 50°C |
| • Infra-red homing | |

NOTES:

1. Maximum engagement height depends on the target type and speed.
2. The efficiency of the set deployment is increased in the case of organized service for target early warning and informing the anti-aircraft operator of the direction, speed and height of the targets.
3. Launching of missiles against the targets flying at the heights lower than 50 m is also permitted, whereat loss of a part of missiles is possible due to the background effect.

TACTICAL AND TECHNICAL CHARACTERISTICS OF THE MISSILE:

1. The missile has the following characteristics

• Caliber	72 mm
• Length (with folded fins)	1440 mm
• Mass (loaded missile)	9800 kg
• Mass of explosive charge	0.370 kg
• Mass of motor propellant charge	4.2 kg
• Muzzle velocity	28 m
• Mean flight speed on the trajectory at $t = +15$ C	500m/s
• Operating time of missile-borne electric power supply (INR)	min.11s.
• Homing method	proportional approach
• Control system	single channel, with IR seeker
• Self destruction time	14-17s

2. The IR seeker has the following characteristics:

• Type of homing head	passive,infra-red, tracking
• Field of view angle	1.5°
• Max. tracking angle	40°
Max.angular velocity of tracking:	
- at sighting and target acquisition	9 /s
- at launching	12 /s
- at flight	9 /s

3.The launching tube has the following characteristics

• Mass	3 kg
• Length	1500 mm

4. The launching device has the following characteristics

• Mass	1.95 kg
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Electric power is supplied to the launching device from the thermal battery at the voltages of 40V and 22V.

5. Ground power supply - the thermal battery has the following characteristics:

• Voltage 40V and 22V	
• Current 0.4A; 2.8A	
Reaction time:	
- at ambient temperatures of -20 to + 50°C	1 s at the most
- at ambient temperatures of - 40 to -20°C	1.3 s at the most
• Operating time	40 s
• Mass	0.66 kg

6.The packing box has the following characteristics:

• Overall dimensions	165x382x325 (mm)
• Mass with two missiles in tubes and four power supplies	59 kg

LAUNCHING ZONES:

The launching zones represents a part of space in which the missile must be launched, while the target is still within it, so that the missile could collide with target at the definite point of engagement zone.

The shape and extent of the launching zone depend on the shape and extent of the engagement zone, i.e. on the missile and target characteristics, in other words, on the target speed, type of target manoeuvre, on the time available for the missile to arrive to the corresponding points of engagement zone. The firing position altitude should also be taken into account due to the air density effect to the missile flight parameters.

The planar launching zone is designed in the system of coordinates with their origin at the missile starting point. In this system the axis OX is parallel to the air-target flight direction, and the axis OY is perpendicular to the axis OX at the missile starting point and it lies in the plane intercepting the axis OX and the target. The axis OZ is perpendicular to the plane XOY.