



Kashtan-M

Mission

The Kashtan-M shipborne air defence gun/missile system is designed for protection against anti-ship missiles, anti-radar missiles, guided aerial bombs, aircraft, helicopters as well as for engagement of small-displacement vessels and small-size sea and ground targets.

Composition:

- combat module;
- surface-to-air missiles;
- command and control module;
- ground support equipment.

Features

The command and control module serves to detect and classify aerial (including low-flying) and stationary targets, to track, to distribute and to designate them to combat modules.

The combat module consists of a gun/ missile unit, radar and optical fire control system, computer system.

Normally, the ship can be armed with one to six combat modules depending on its displacement and self-defence capability required.

9M311-1 two-stage solid-propellant SAM features a fragmentation rod warhead with a proximity fuse. Missiles are housed in transport-launch containers ensuring their safe handling and reliability.

The gun mount comprises two 30mm six-barrel GSh-6-30K rapid-fire cannons with a linkless ammunition feed and evaporative cooling system.

The integrated control system simultaneously tracks targets and guides one or two missiles onto them via its radar and TV/optical channels with autonomic selection of optimal mode.

To work in adverse weather conditions Kashtan-M is equipped with a thermal imaging system.

Kashtan-M ADGMS also comprises a below-deck storage/loading system (capacity – 32 or 48 SAMs, four-missile launch unit is loaded within 1.5 min).

Kashtan-M system ensures efficient self-defence of the carrier-ship thanks to high

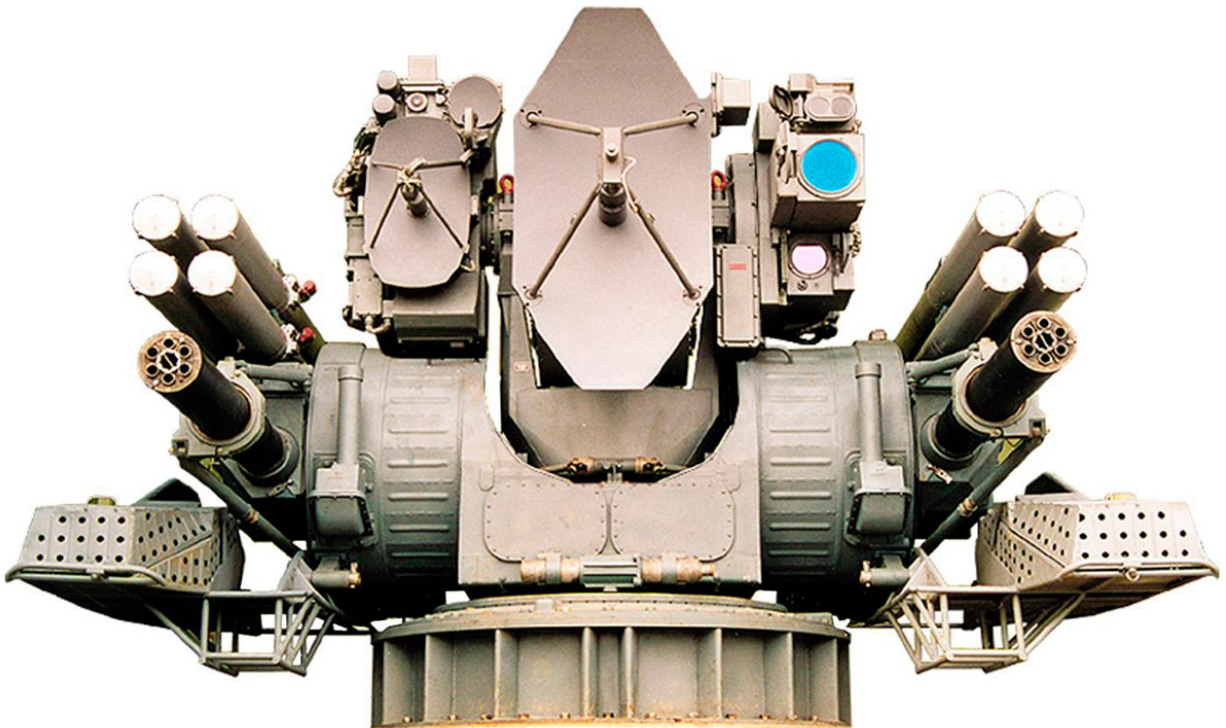
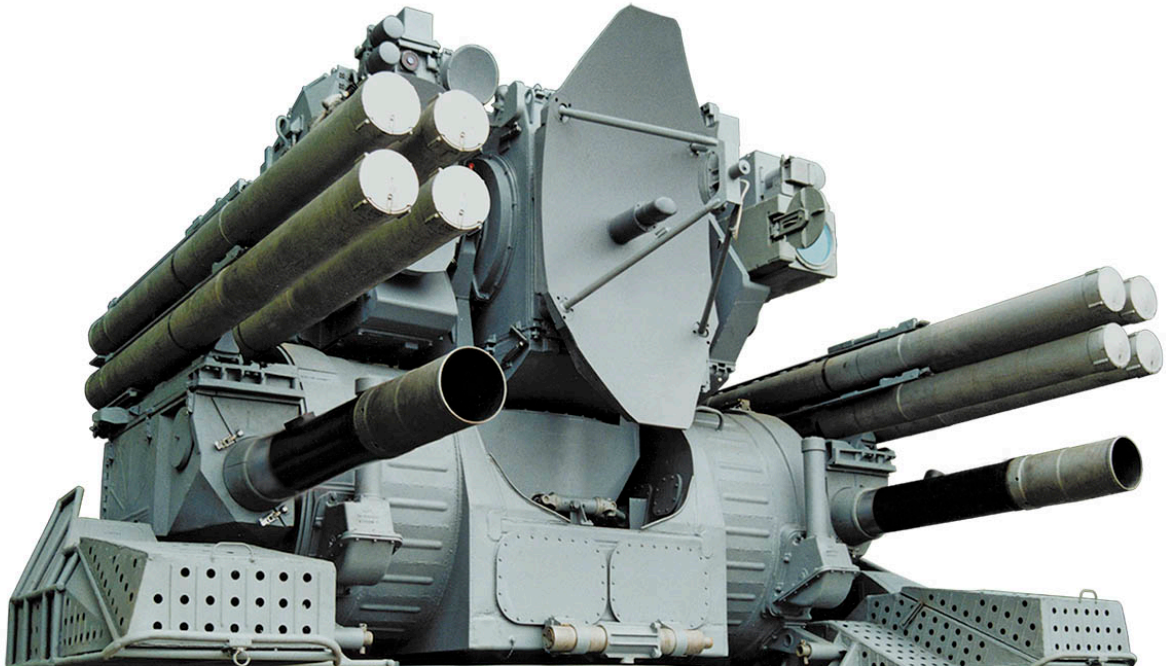


probability of interception of approaching air targets at longer distances (10,000 m to 1,500 m) with missiles, and a follow-on engagement of survived targets at a close-in range (4,000 m to 500 m) with gunfire.

Fully automated combat operation of the system (from target acquisition till engagement) allows it to engage up to five targets a minute. Kashtan-M ADGMS can be installed on ships displacing 400-plus tonnes.

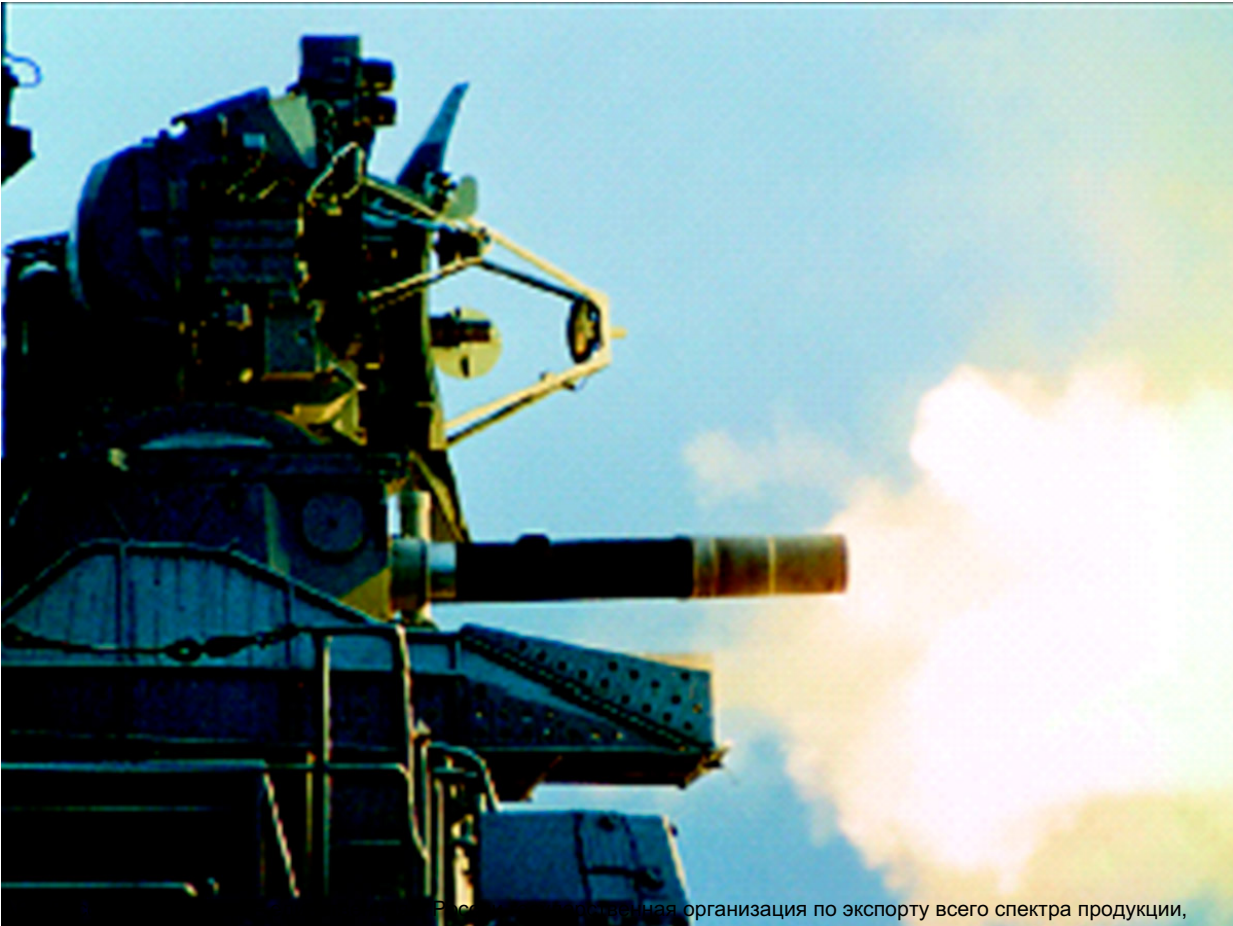
Main characteristics:

- Target engagement envelope, m:
 - in range:
 - with missiles: 1500 - 10000
 - with guns: 500 - 4000
- in altitude:
 - with missiles: 2-6000
 - with guns: 0-3000
- Reaction time, s: 5 - 7
- Max target speed, m/s: 1000
- Kill probability (for one pass through the engagement zone): 0,96-0,99
- Probability of repulsing air attack of 4 anti-ship cruise missiles ($V = 300 \text{ m/s}$, $t = 2 \text{ s}$) by one combat module: 0,9
- Overall rate of gunfire, rds/min: 10000
- Type of artillery rounds: 30mm APDS, HEFI, HE/tracer





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