

AK-630

Subjects: **Others**

Contributor: HandWiki

The AK-630 is a Soviet and Russian fully automatic naval close-in weapon system based on a six-barreled 30 mm rotary cannon. In "630", "6" means 6 barrels and "30" means 30 mm. It is mounted in an enclosed automatic turret and directed by MR-123 radar and television detection and tracking. The system's primary purpose is defense against anti-ship missiles and other precision guided weapons. However it can also be employed against fixed or rotary wing aircraft, ships and other small craft, coastal targets, and floating mines. Once operational, this weapon system was rapidly adopted, with up to 8 units installed in every new Soviet warship (from mine-hunters to aircraft carriers), and hundreds produced in total.

rotary wing

ak-630

weapon system

1. Description



MR-123 fire control radar. By BrokenSphere - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=4276996>

The complete weapon system is called **A-213-Vympel-A**, which comprises the AK-630M Gun Mount, MR-123-02 Fire Control Radar System, and SP-521 Electrical-Optical Tracker. A single MR-123 radar system can simultaneously control two guns, either two 30 mm gun mounts, or two 57 mm gun mounts, or one 30 mm gun and one 57 mm gun. The radar system can engage aerial and surface targets at 4 km and 5 km respectively. The electro-optical system can detect a MiG-21-sized aerial target 7 km away, while torpedo boat-sized surface targets can be detected at a range of up to 70 km. Features include surveillance and tracking modes, high jamming immunity, laser range finder and TV optical sight. It is in operation on almost all Russian Navy ships from fast attack boats to the *Kirov* battlecruiser.

The gun mount is fully automated, and can also be remotely controlled by an operator from either the control console or via a remotely mounted gunsight. It has a higher firing rate than both the Goalkeeper and Phalanx (Block 1 and older) CIWS models. They are often mounted in pairs, with as many as four pairs mounted on the larger ships, providing an effective point defence (last) layer. However, like all gun-based CIWS, they suffer from short engagement times and the need for multiple volleys to effectively eradicate a threat.

2. Development

The AK-630 CIWS is composed of several members and sometimes the Kashtan CIWS's sub-systems and its derivatives are also included.

2.1. AK-630

The design of the AK-630 CIWS was initiated in 1963, with the first operational prototype completed in 1964. Trials of the complete system, including radar and controls went on until 1976 when the system was accepted for service.

2.2. AK-630M

During the deployment of the system, numerous problems that did not appear in trials were exposed in its application, and some modification of the original AK-630 was made to correct these problems, and in 1979, the new system was named as AK-630M and was accepted into service.

2.3. AK-306

A derivative of AK-630M was developed for light craft and this system was named as AK-306. Externally, the air-cooled AK-306 can be distinguished from the AK-630 by the absence of the water cooling system (a cylindrical jacket that surrounds the barrel cluster of the AK-630). Internally, the AK-306 (A-219) used electricity to power the automatics, instead of using the exhaust. This version also lacked radar control, being only optically guided, hence making it less of an anti-missile weapon and more of a surface-to-surface weapon, and the designation of the overall system is consequently changed from **A-213-Vympel-A** to **A-219**. The design started in 1974 and the system was accepted into service in 1980. When production was completed in 1986, 125 systems were in service.

2.4. AK-630M1-2

In 1983, a decision was made to update the design and modify the AK-630 system to include a second gun mounted above the first, which provides 10,000 rpm in total. The AK-630M1-2 "Roy" was roughly the same size and weight allowing installation in existing AK-630 mounts. Though the system proved to be successful, the AK-630M1-2 Roy was not accepted for production due to the maturity of a combined missile and gun system, then designated the 3M87 Kortik, but later called Kashtan. The single example of AK-630M1-2 Roy remains installed on the Project 206.6 class missile boat # P-44.

In July 2007 at IMDS-2007, a modernized version of the AK-630M1-2 was showcased by OAO AK Tulamashzavod under the new name "Duet". Visually "Duet" differs from "Roy" in having a new mount with a stealthy low RCS design compared with the more traditional rounded AK-630 mounts.

In 2012 it was announced that the new Ivan Gren-class landing ship would be armed with the modified AK-630M-2 system.^[1] It is also used by the *Buyan-M*-class missile corvette.^[2]

2.5. H/PJ-13

H/PJ-13 is the Chinese upgraded version of AK-630M. The most obvious visual difference between AK-630 and its Chinese cousin H/PJ-13 is that the latter has a stealth turret.^[3] Instead of MP-123-02 fire control radar originally used on AK-630M, a modified version of Type 347 radar is used.^[3] The original electro-optical system of AK-630M is also replaced by domestic Chinese system ZGJ-1B,^[3] and the fire control system is replaced by domestic Chinese ZFJ-1A fire control system.^[3] To improve its anti-missile capability, Chinese have also developed APDS round for H/PJ-13 to supplement/replace the original high explosive round of AK-630M.^[3]

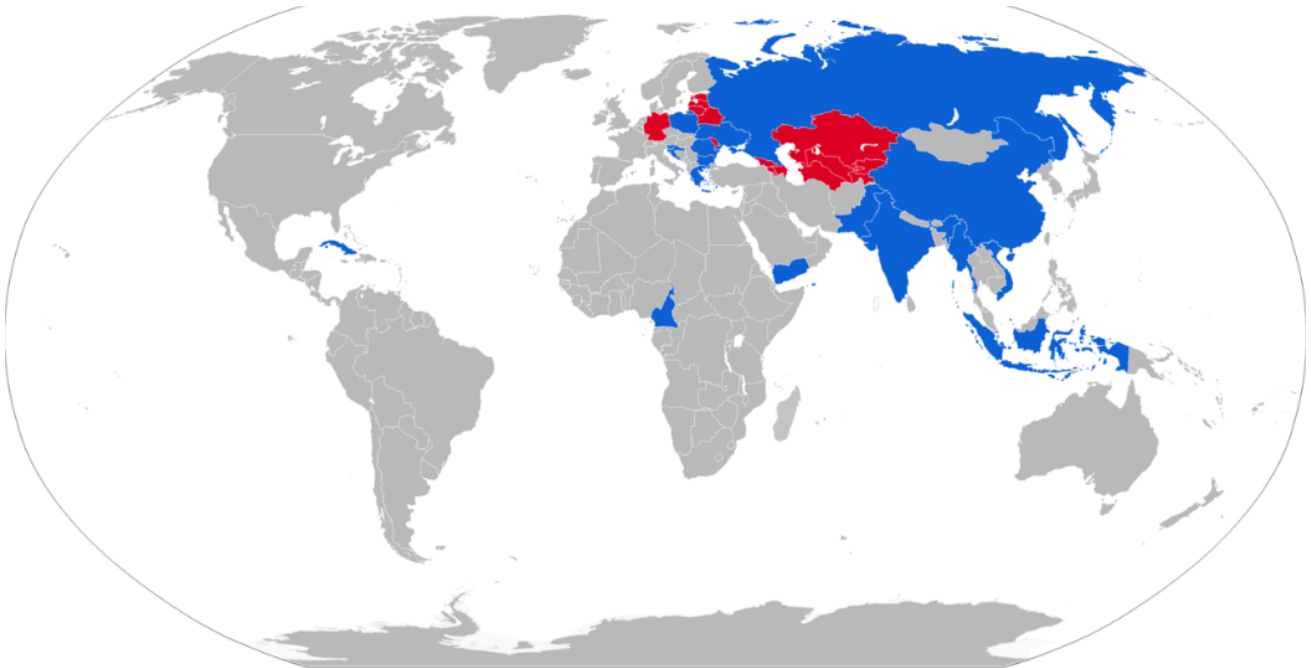
3. Comparison with Current CIWS

Comparison of some modern CIWS

	 AK-630 ^[4]	 AK-630M1-2 ^[5]	 Phalanx CIWS ^[6]	 Goalkeeper CIWS	 DARDO ^[7]
Weight	9,114 kg (20,093 lb)	11,819 kg (26,056 lb)	6200 kg (13,700 lb, incl. in-built radars)	9,902 kg (21,830 lb)	5,500 kg (12,100 lb)
Armament	30 mm (1.2 in) 6 barreled GSh-6-30 rotary cannon	2 × 30 mm (1.2 in) 6 barreled GSh-6-30 rotary cannon	20 mm (0.79 in) 6 barreled M61 Vulcan rotary cannon	30 mm (1.2 in) 7 barreled GAU-8 rotary cannon	40 mm (1.6 in) 2 barreled Bofors 40 mm
Rate of Fire	5,000 rounds per minute	10,000 rounds per minute	4,500 rounds per minute	4,200 rounds per minute	600/900 rounds per minute (optionally : proximity-fused rounds)
(effective/ flat-trajectory) Range	4,000 m (13,000 ft)	4,000 m (13,000 ft)	3,600 m (11,800 ft)	2,000 m (6,600 ft)	4,000 m (13,000 ft)
Ammunition storage	2,000 rounds	4,000 rounds	1,550 rounds	1,190 rounds	736 rounds


Muzzle velocity	900 m (3,000 ft) per second	900 m (3,000 ft) per second	1,100 m (3,600 ft) per second	1,109 m (3,638 ft) per second	1,000 m (3,300 ft) per second
Elevation	-12 to +88 degrees	-25 to +90 degrees	-25 to +85 degrees	-25 to +85 degrees	-13 to +85 degrees
Traverse	±180 degrees	±180 degrees	±180 degrees	360 degrees	360 degrees

4. Operators



Map of AK-630 operators in blue with former operators in red. By Jurryaany - Own work, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=41357117>

4.1. Current Operators

 Algerian National Navy on Steregushchy-class corvette

Bulgaria

Burma

Cameroon

People's Republic of China^[4]

Croatia

Cuba

India^{[4][8]}

Indonesia

Greece

Pakistan

Poland^[8]

Romania

Russia^{[4][8]}

Slovenia^[4]

North Korea

Ukraine^[4]

Vietnam

Yemen

Kenya

Egypt

4.2. Former Operators

East Germany^[8]

Germany

Soviet Union^{[4][8]}

References

1. Glukhov, Dmitry (15 March 2012). "Error: no |title= specified when using {{Cite web}}" (in Russian). ФлотПром. Центральный Военно-Морской Портал. <http://flotprom.ru/publications/actual/prenatalscars/>. Retrieved 23 March 2013.
2. Russian Navy Latest Buyan-M Corvette Vyshny Volochek Started Sea Trials - Navyrecognition.com, 7 September 2017 <https://navyrecognition.com/index.php/news/defence-news/2017/september-2017-navy-naval-forces-defense-industry-technology-maritime-security-global-news/5555-russian-navy-latest-buyan-m-corvette-vyshny-volochek-started-sea-trials.html>
3. "H/PJ-13". <http://www.rimnds.com/art/show.htm?id=650>. Retrieved September 5, 2017.
4. "AK-630 Gatling Gun Close in Weapon System". Indian-Military.org. 12 March 2010. Archived from the original on 15 March 2010. <https://web.archive.org/web/20100315113834/http://www.indian-military.org/navy/ordnance/close-in-weapon-system/267-ak-630-gatling-gun-close-in-weapon-system.html>.
5. "30 mm AK-630M1-2 / AK-630M-2 System" (in Russian). MilitaryRussia.ru. 13 March 2009 – 13 July 2011. <http://militaryrussia.ru/blog/topic-165.html>. Retrieved 23 March 2013.
6. Dan Petty. "The US Navy -- Fact File:". U.S. Navy. http://www.navy.mil/navydata/fact_display.asp?cid=2100&tid=800&ct=2. Retrieved 26 November 2014.
7. "Italy 40 mm/70 (1.57") Breda". navweaps.com. http://www.navweaps.com/Weapons/WNIT_4cm-70_Breda.htm. Retrieved 26 November 2014.
8. "30 mm AK-630 System" (in Russian). MilitaryRussia.ru. 19 January 2009 – 4 July 2010. <http://militaryrussia.ru/blog/topic-69.html>. Retrieved 22 March 2013.

Retrieved from <https://encyclopedia.pub/entry/history/show/68685>