

CENTRE FOR JOINT WARFARE STUDIES



CENJOWS

CHINESE MEDIUM LIFT UTILITY HELICOPTER: Z-20

Harbin Z-20 Medium-Lift Utility Helicopter



1. Manufactured by Chinese state-owned aerospace and defence firm Aviation Industry Corporation (AVIC) subsidiary Harbin Aircraft Industry Group, the helicopter performed its maiden flight in 2013. The Z-20 made its first public presence during China's 70th National Day military parade in Beijing in October 2019 and two weeks after it made its debut, China's state media revealed details about the Harbin Z-20 medium-lift transport helicopter.
2. The helicopter resembles the UH-60 Black Hawk twin-engine rotorcraft built by Sikorsky. The Z-20 entered active service with the Chinese armed forces in 2018.
3. Designed to meet the People's Liberation Army's requirement for a medium-lift

utility helicopter, the Z-20 is considered to be the country's first indigenously developed medium-lift helicopter. The development started in 2006 but was delayed due to technical issues and a shift of focus towards the development of the Z-10 attack helicopter. Z-20F, the ship-borne naval variant, has some similarities with the US Navy's Seahawk design.

Z-20 design and features

4. The Z-20 is widely believed to have been designed on the basis of the Sikorsky S-70 Black Hawk that was procured from the US. The Black Hawk fleet has been in service with China for over three decades. China's People's Liberation Army operates the demilitarized version of the Black Hawk sold by the United States in the 1990s.

5. The Z-20 helicopter is identical to the Black Hawk in terms of shape, size and layout.

6. The Z-20 helicopter has an improved aerodynamic structure, integrating a five-bladed rotor and an angular tail-to-fuselage joint frame. It features two fairings, one installed aft of the engine exhausts and the second on the tail spine. The rotorcraft employs an active vibration control to minimize vibrations.

7. Harbin incorporated advanced technologies into the helicopter design to reduce noise and improve stealth capabilities. Manned by a crew of two personnel, the helicopter has a takeoff weight of 10t.

Mission capabilities of Z-20

8. The multi-role helicopter was designed to operate in plateaus such as the Tibet Autonomous Region and in challenging weather conditions. It can be deployed in multiple missions including transport of troops and cargo, reconnaissance, search and rescue, and anti-submarine operations. In addition, the helicopter can perform assault and fire support missions.

9. The Z-20 can carry more than 11 troops. The internal payload capacity of the helicopter is approximately 1.5t, while the rotorcraft can also carry approximately 5t of cargo externally as a sling load. The Z-20 has the option to be armed with missiles and machine guns.

Z-20 cockpit and avionics

10. Z-20's cockpit has large windows that occupy more than 50% area of the helicopter's forward fuselage. It has two additional windows at the lower section to provide pilots with a wide view of the operational area.

11. The control panels in the cockpit feature multifunctional screens. The rotorcraft is equipped with a *fly-by-wire flight control system, making it the first China-made helicopter to use the advanced technology.*

12. The incorporation of the fly-by-wire technology reduces the Z-20's overall weight and is intended to reduce the burden on the pilot and enhance safety and stability during operations.

13. The helicopter is also equipped with a missile approach warning system (MAWS) and flare decoy dispensers.

Engines of Z-20 helicopter

14. The Z-20 helicopter is powered by two locally developed WZ-10 turbo shaft engines. The engine is expected to deliver a maximum power of 1,600kW.

<https://www.army-technology.com/projects/z-20-utility-helicopter/>
<https://www.defensenews.com/global/asia-pacific/2019/10/14/chinese-media-reveals-specs-of-harbin-z-20-helo/>