ICS 49.020
CCS V 44

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 47581-2026

General requirements for the parachute systems of civil small and light unmanned rotorcraft

民用轻小型旋翼无人机降落伞系统通用要求

Issued on: May 25, 2026 **Implemented on: December 1, 2026**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

Table of Contents

4 System Requirements

4.1 System Composition The parachute system consists of the following components.

a) Parachute components. including pilot parachute, main parachute, harness, parachute pack, and closure device;

b) Parachute pod assembly. including the parachute pod body, parachute pod cover, lifting points, and auxiliary structural components, etc.

c) Parachute system. including power source and its trigger;

d) Activation device. including power supply, control, measurement and other devices.

4.2 System Functions and Performance

4.2.1 Functions The parachute system should have the following functions.

a) Prevent accidental activation of the parachute.

b) It must have at least one of the following parachute opening functions. 1) Passive parachute deployment. It can receive parachute deployment commands in real time to activate and deploy the parachute; 2) Active parachute deployment. It can be activated autonomously according to the predetermined emergency control strategy to realize parachute deployment.

4.2.2 Performance The performance requirements for the parachute system are as follows:

a) Steady Descent Speed. Under standard sea-level density altitude, standard temperature, and wind speed not exceeding level 3, the parachute components are lightweight and compact. The steady-landing speed of a rotary-wing UAV generally corresponds to a kinetic energy of no more than 290J;

b) Minimum parachute deployment altitude. Under the expected operating conditions of the UAV, it should not be less than the maximum parachute deployment loss altitude;

c) Launch load. The dynamic impact force generated during the launch process should not exceed the upper limit of the UAV's load capacity;

d) Maximum opening load. Taking into account factors such as canopy area, air density, and descent speed, the opening impact force should not exceed that of a lightweight cyclone. Maximum payload capacity of winged drones.

4.3 Reliability The reliability of the parachute system should meet the overall reliability requirements of lightweight rotary-wing UAVs, and redundancy should be considered in key aspects such as parachute deployment and opening. design.

4.4 Security Except in cases triggered by emergency landings, the parachute system should not affect the safe operation of small, lightweight rotary-wing UAVs. Specifically, the parachute... The cabin components should be flame-retardant and corrosion-resistant; the parachute system should, when necessary, be flame-retardant and airtight.

4.5 Environmental adaptability The environmental adaptability of the parachute system, such as high and low temperatures, vibration, humidity and heat, and salt spray, should meet the overall requirements of lightweight rotary-wing UAVs.

4.6 Electromagnetic Compatibility The parachute activation device is compatible with the avionics of lightweight rotary-wing drones.

4.7 Appearance and Marking The parachute system should be free from damage, with no contamination, scratches, rust, or other signs of corrosion on its surface. Specifically, the surfaces of metal components should meet [specific requirements]. The requirements of HB6362 stipulate that the appearance quality of fabric components such as umbrella canopies, parasol cords, and slings should comply with the requirements of HB6449 and HB6450. For parachute systems that use pyrotechnic devices or compressed gas devices to achieve ejection, there should be easily identifiable hazard warnings.

5 Parachute Components

The requirements for the parachute assembly are as follows:

a) Parameters such as parachute type, area, and system length should ensure that the parachute system meets the steady descent speed requirement;

b) Parachutes should be opened in an orderly manner;

c) Avoid tangled parachute lines and sticky canopy, which can lead to failure to open the umbrella;

d) It should be able to withstand the ejection load and the maximum parachute opening load, and the structural strength safety factor of the component should not be less than 1.5.

Note. System length refers to the sum of the lengths of the canopy radius, parachute lines,

straps, etc.

6 Parachute Container Components

The parachute compartment assembly should meet the overall structural strength and stiffness requirements of lightweight rotary-wing UAVs, and should not experience any unintended consequences during its service life. Connection failure. The parachute should not be snagged or scratched during ejection.

7.Parachute system The parachute ejection device should eject or push the parachute assembly out of the parachute compartment within a specified time, achieving an orderly straightening of the parachute assembly. Cabin speed.

8.Activation device The requirements for the activation device are as follows:

a) It should have a self-testing function;

b) It should have the function of activating parameter measurement;

c) An independent power supply should be provided to ensure that the electronic equipment required for the emergency parachute is powered normally when the parachute is deployed;

d) Before activating parachute deployment, measures such as stopping the propellers should be taken to prevent the parachute from becoming entangled with the propeller blades after deployment;

e) Parachute deployment-related status information (such as deployment time, descent rate, etc.) should be monitored and recorded;

f) It should have an activation lock function.

9 Interface Requirements

9.1 Mechanical Interface The mechanical interface requirements are as follows:

a) Parachute pod interface. The installation location, dimensions, and installation method should meet the overall layout of the lightweight rotary-wing UAV and be reliably fixed to the lightweight... On small rotary-wing drones, there should be no loosening or detachment during the service life.

b) Sling interface. The relationship between the UAV's center of gravity, sling point location, and sling length should be considered; the sling point structure should meet the maximum opening requirements. The umbrella load should not cause failures such as breakage or tensile failure.

c) Activation device interface. The installation location, dimensions, and installation method should meet the overall layout of the UAV and should avoid vibration, rain, and

electromagnetic interference. It should not loosen or fall off during service, even under adverse conditions such as disturbances.

9.2 Electrical Interfaces The electrical interface requirements are as follows:

a) Communication Interface. Communication with the lightweight rotary-wing UAV uses serial communication methods, such as RS232, RS485, CAN, etc. Transmission... The data rate, data frame format, and connector selection should meet the overall requirements of the UAV.

b) Power supply interface. The power supply voltage, current, and connector selection of the parachute system should meet the overall requirements of the lightweight rotary-wing UAV system. Require.

c) Connectors. should have anti-mis-mating function.