ICS 93.110
CCS P 52

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB 50127-2020

Replacing GB 50127-2007

Technical standard for aerial ropeway engineering

Issued on: January 16, 2020 **Implemented on: August 1, 2020**

Issued by: Ministry of Housing and Urban-Rural Development of the People's Republic of China;
State Administration for Market Regulation

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1 General

1.0.1 This standard is formulated in order to improve the technical level of aerial ropeway engineering, implement national technical and economic policies, achieve advanced technology, economical rationality, energy conservation and environmental protection, and ensure project quality and safe operation.

1.0.2 This standard is applicable to the design, construction and acceptance of new construction, expansion or reconstruction of double-track circular freight ropeways, single-track circular freight ropeways, double-track reciprocating passenger ropeways and single-track circular passenger ropeways.

1.0.3 The transportation plan of the passenger cableway and freight cableway should be determined after a comprehensive comparison based on the construction conditions and technical conditions.

1.0.4 New technologies, new processes, new equipment and new materials involving personal safety shall be adopted in the project only after they have been tested or proven safe and reliable through production practice and qualified.

1.0.5 The construction of passenger cableway should be based on the principles of protecting ecology and landscape, coordinating with the natural environment and facilitating tourism. The site and route selection of the cableway should meet the overall planning or regional planning of the scenic spot and the requirements of environmental capacity management.

1.0.6 The design, construction and acceptance of the cableway project shall not only implement the provisions of this standard, but also comply with the provisions of the current relevant national standards.

2.1.1 aerial ropeway aerial ropeway

A transportation system in which steel wire ropes are erected on a supporting structure as a running track for transporting materials or personnel.

2.1.2 monocable circulating material ropeway

There is only one carrying cable, which carries the trucks and circulates on the line, and is used for the cableway for transporting materials.

2.1.3 Bicable circulating material ropeway

There are both load cables and traction cables, and the wagons circulate on the line, which is used to transport materials.

2.1.4 monocable circulating passenger ropeway

There is only one carrying cable, which carries passenger cars and circulates on the line, and is used to transport people. Among them, according to the different structure types of the gripping device, it can be divided into single-line circulation detachable gripping device cabin (basket, hanging chair) type passenger ropeway and single-line looping fixed gripping device cabin (hanging basket, hanging chair) type passenger ropeway cableway.

In addition, according to the different operation modes, it can be divided into single-cable fixed grip cabin type passenger ropeway and single-cable pulsating loop fixed grip car group passenger ropeway.

2.1.5 Bicable reversible passenger ropeway

There are both load cables and traction cables, and passenger cars run reciprocatingly on the line, which is used to transport people. Among them, according to the different passenger car marshalling, it is divided into two-line reciprocating car passenger ropeway and two-line reciprocating car group passenger ropeway.

2.1.6 Truck bucket

A vehicle for transporting materials. These mainly include rope grippers or running trolleys, booms or hangers, and cargo boxes.

2.1.7 Bus carrier

Vehicles for transporting people. These mainly include rope grips or trolleys, booms or hangers, passenger compartments or other rides. Riding equipment can be divided into different forms such as carriages, cabins, hanging baskets, hanging chairs, and towing seats.

2.1.8 Grip grip

The device connected to the carrying rope or pulling rope in a passenger car or a truck is called a gripper. Among them, the grips that do not need to be disengaged and tied with the wire rope when entering and leaving the station are called fixed grips; the grips that need to be disengaged and tied with the wire rope when entering and leaving the station are called detachable grips.

2.1.9 sliding resistance safety factor of grip

The ratio of the anti-sliding force of the grip to the force component of the weight of the heavy vehicle along the direction of the wire rope at the maximum slope.

2.1.10 bracket trestle

A support structure for supporting wire ropes in cableway stations and on lines.

2.1.11 transport capacity transport capacity

One-way transport volume per unit time.

2.1.12 height difference vertical rise

The difference in elevation between two stations or between two points on a line support.

2.1.13 Cable distance gauge

The distance between the carrying cable or the center line of the carrying cable on both sides of the bracket is called the cable distance. For a double-cable track with double-loaded cables, the cable distance is the distance between the centerlines of the double-loaded cables on both sides of the support.

2.1.14 inclination angle

The angle formed by the tangent of the wire rope suspension curve at the support point and the horizontal line is called the inclination angle. Among them, the inclination angle below the horizontal line of the support point is called positive inclination angle; the inclination angle above the horizontal line is called negative inclination angle.

2.1.15 entrance angle

The angle formed by the tangent line of the load-bearing cable or the suspension curve of the load-carry cable at the support point of the station and the horizontal line is called the approach angle. Among them, if the entry angle is above the horizontal line, it is called an elevation angle entry; if the entry angle is below the horizontal line, it is called a depression

angle entry.

2.1.16 Deflection sag

The distance between any point on the suspension curve of the steel wire rope and the chord in the span in the vertical direction is called the deflection of the steel wire rope at that point.

2.1.17 driving section

A transmission system consisting of an independent driving device and tensioning device or a combined driving and tensioning device and a winding wheel.

2.1.18 Tension section

In a two-track circular freight ropeway route, the load-carrying rope is divided into several sections, each of which can be called a tension section. The station building between adjacent tensioning sections is called the tensioning section station. Among them, the tension at both ends of the load-bearing cable is called a double anchor station; the anchorage at both ends is called a double anchor station;

2.1.19 carrying rope

The wire rope that bears the gravity of a passenger car or a truck without active movement is called a load-bearing cable. Among them, the load-bearing cable when there is no vehicle on the line is called an empty cable; the load-bearing cable when the line is full of empty vehicles according to the designed vehicle distance is called an empty cable; the line is filled with full-load vehicles according to the designed vehicle distance The load-bearing cables are called heavy-duty cables.

2.1.20 hauling rope

Steel wire ropes that tow passenger cars or trucks running on load-bearing cables.

2.1.21 carrying cable carrying-hauling rope

In a single-cable track, the steel wire rope used both for load and traction is called a carrying cable. Among them, the carrying cable when there is no vehicle on the line is called empty cable; the carrying cable when the line is filled with empty vehicles according to the designed vehicle distance is called empty cable; the line is filled with fully loaded vehicles according to the designed vehicle distance The carrying cable is called the heavy-duty cable.

2.1.22 Tension rope