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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 38454-2019

Personal fall protection equipment - Horizontal lifeline device

坠落防护 水平生命线装置

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1 Scope

GB 38454-2019 is the Chinese national standard on personal fall protection equipment - horizontal lifeline device, in the field of environment and health protection, safety. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 31 December 2019 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 July 2020.

Classification: ICS 13.340.99, CCS c73. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Standard specifies the technical requirements, test methods, markings and information provided by the manufacturer for horizontal lifeline device. This Standard is applicable to horizontal lifeline device that is used by operators whose weight and load are no more than 100kg at a level to prevent falling from a height. This Standard is not applicable to horizontal lifeline device for fire-fighting and sports.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this document.

GB/T 6096 Test Method for Personal Fall Protection Systems

GB/T 10125 Corrosion Tests in Artificial Atmospheres - Salt Spray Tests

GB/T 23469 Personal Fall Protection Equipment - Connectors

GB 24543 Personal Fall Protection Equipment - Lanyards

3 Terms and Definitions

For the purpose of this document, the following terms and definitions apply.

3.1 Horizontal lifeline device The device that is fixed by two or more anchors, and the horizontal angle of the connection between any two anchors is no greater than 15°. It consists of flexible guide rails such as steel wire rope, fiber rope, webbing, or rigid guide rails such as stainless steel, aluminum alloy, etc.; it is used to connect and fall protection equipment and attachments (fixed facilities such as walls, floors, and scaffolding). NOTE: According to the different used guide rails, it is divided into flexible horizontal lifeline device and rigid horizontal lifeline device (Figure 1).

3.2 Horizontal lifeline system A system that consists of a horizontal lifeline device and other fall protection equipment used in conjunction.

3.3 End anchor A connecting fixture on a building or structure. NOTE: It is used to connect with the end anchor of the guide rail.

3.4 End anchor connector The part that is used to connect the guide rail to the end anchor.

3.5 Intermediate anchor Except for the end anchor, other anchor devices that are used to fix the guide rail.

3.6 Intermediate anchor connector The part that connects the guide rail to the intermediate anchor.

3.7 Mobile attachment device A device that can slide along a guide rail and connect fall protection equipment.

3.8 Horizontal lifeline energy absorber A device that is connected to a guide rail or a mobile attachment device to absorb impact force when a fall occurs.

3.9 Maximum arrest force During the dynamic test, the maximum impact force that is

measured at the mobile attachment device.

3.10 Maximum arrest load During the dynamic test, the maximum impact force that is measured at the horizontal lifeline anchor.

3.11 Minimum clearance The minimum vertical distance that ensures the user not to collide with the highest obstacle on the ground during the fall. It indicates the distance between the lowest point of the test object falling and the highest obstacle on the ground.

4.1.1 The personal fall protection equipment that is connected to the horizontal lifeline device shall meet the corresponding national standards such as GB 24543 and GB/T 23469, etc.

4.1.2 The horizontal lifeline device shall ensure that it is matched with personal fall protection equipment and shall not accidentally disconnect after being correctly connected.

4.2 Dynamic performance

4.2.1 Horizontal lifeline device When tested in accordance with 5.2.4, the horizontal lifeline device shall meet the following requirements:

- a) The test heavy object shall not touch the ground;
- b) The horizontal lifeline device shall not be loose from the fixed structure;
- c) There shall be no such phenomena, such as broken webbing, broken metal parts, disconnected connectors, etc.;
- d) The fall distance shall be no greater than the value provided by the product provider;
- e) The maximum arrest load shall not exceed the value provided by the product provider.

4.2.2 Horizontal lifeline system When tested in accordance with 5.2.5, the horizontal lifeline system shall meet the following requirements:

- a) The maximum arrest force shall be no greater than 6kN;

4.4 Corrosion resistance Perform the test against the metal parts according to 5.4, the metal parts shall be no red rust or other visible corrosion marks; but the white spots are allowed.

5.1 General

5.1.1 The test shall use an inspection instrument with an appropriate range, and the inspection of the appearance of the components shall be carried out under good light conditions.

5.1.2 Unless otherwise specified, a new horizontal lifeline device and test rope shall be used for each test.

5.1.3 If the horizontal lifeline device allows multiple personal fall protection equipment to be connected for use, the system that is composed of each type of fall protection equipment and the horizontal lifeline device shall be tested.

5.1.4 During the inspection process, the technical requirements specified in

4.1 shall be inspected through operation, trial-use, etc.; and if necessary, inspection shall be carried out in accordance with the corresponding national standards; or the manufacturer shall issue a conformity certificate for other equipment and materials.

5.2.1 Test equipment

5.2.1.1 Dynamic test frame: It shall be able to ensure that the horizontal lifeline device is firmly installed in accordance with the instructions of the product provider. When the load of the tested horizontal lifeline device is 20kN, the structural deformation at the test anchor shall be no greater than 1.0mm.

5.2.1.2 Impact force measuring device: it shall meet the requirements of GB/T 6096.

5.2.1.3 Data processing device: it shall meet the requirements of GB/T 6096.

5.2.1.4 Connector: it shall meet the requirements of GB/T 23469.

5.2.1.5 Tested heavy object: tested heavy object A is a metal cylinder with a mass of (100 ± 1) kg, a bottom diameter of (200 ± 10) mm, and a lifting ring at the top center; tested heavy object B is a metal cylinder with a mass (200 ± 1) kg, a bottom diameter of (200 ± 10) mm, and a lifting ring at the top center; and the tested heavy object shall be firmly assembled.

5.2.4.1 The dynamic performance test procedures of the single-stage horizontal lifeline device are as follows:

- a) Install the horizontal lifeline device on the test frame according to the longest span and maximum tilt angle that are allowed in the product instructions. The installation schematic diagram is shown in Figures 3 and 4;
- b) When the product takes a flexible guide rail, respectively install the impact force measuring device on both ends of guide rail of the flexible horizontal lifeline device and the mobile attachment device. When the product takes a rigid guide rail, install the impact force measuring device on the mobile attachment device;
- c) Use the test rope to connect the heavy object to the mobile attachment device of the horizontal lifeline device; the heavy object shall be located at the midpoint of the span; and the horizontal distance between the tested heavy object and the mobile attachment device is no more than 300mm;
- d) Move the tested heavy object downward until the sample under test fully bears its gravity