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**Test Methods for Fastening Systems of High - Speed Railway -
Part 4: Test of Fatigue Performance of Fastening Assembly
(English Translation)**

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Table of Contents

Foreword...	4
Introduction...	5
1 Scope...	6
2 Normative References...	6
3 Terms and Definitions...	7
4 Usage Requirements...	8
4.1 Environmental adaptability...	8
4.2 Use performance...	8
4.3 Use safety...	9
4.4 Use comfort...	11
5 Test Methods...	11
5.1 Preparations before the test...	11
5.2 Test site...	11
5.3 Stationary test...	12
5.4 Determination of the maximum productivity...	12
5.5 Determination of Maximum travel speed...	15
5.6 Determination of maximum climbing angle...	16
5.7 Noise test...	17
5.8 Operator's seat vibration test...	17
5.9 Lighting, signal and indicator lights and reflectors test...	17
5.10 Forward and reverse audible alarm test...	17
5.11 Heating system test...	17
5.12 Reliability test...	17
6 Marking, Operator's Manual, Transportation, and Storage...	18
6.1 Marking...	18
6.2 Operator's manual...	18
6.3 Transportation...	19
6.4 Storage...	19
Appendix A (Informative) Basic Parameters of the Snow Groomer...	20

1 Scope

This Document specifies the usage requirements and testing methods, as well as markings, operator's manuals, transportation, and storage for snow groomers.

This Document applies to the use and inspection of snow groomers, a key component of skiing venue equipment.

2 Normative References

The provisions in following documents become the essential provisions of this Document through reference in 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 8419 Earth-moving machinery - Laboratory evaluation of operator seat vibration

GB/T 8595 Earth-moving machinery - Operator's controls

GB/T 16937 Earth-moving machinery - Operator's field of view - Test method and performance criteria

GB/T 17771 Earth-moving machinery - Falling-object protective structures - Laboratory tests and performance requirements

GB/T 17921 Earth-moving machinery - Seat belts and seat belt anchorages - Performance requirements and tests

GB/T 17922 Earth-moving machinery - Roll-over protective structures - Laboratory tests and performance requirements

GB/T 19933.4 Earth-moving machinery - Operator enclosure environment - Part 4.

Heating, ventilation and air conditioning (HVAC) - Test methods and performance

GB/T 20178 Earth-moving machinery - Machine safety labels - General principles

GB/T 20418 Earth-moving machinery - Lighting, signaling and marking lights, and reflex-reflector devices

GB/T 21155 Earth-moving machinery - Machine-mounted audible travel alarms and forward horns - Test methods and performance criteria

GB/T 22358 Earth-moving machinery - Preservation and storage

GB/T 25607 Earth-moving machinery - Guards - Definitions and requirements

GB/T 25613 Earth-moving machinery - Determination of emission sound pressure level at operator position - Stationary test conditions

GB/T 25622 Earth-moving machinery - Operator's manual - Content and format

3 Terms and Definitions

For the purposes of this Document, the following terms and definitions apply.

3.1 Snow groomer

Self-propelled crawler machinery that is equipped with snow-pushing and snow-grooming devices.

3.2 Snow blade

A snow-pushing device that is installed at the front end of a snow groomer, which can shovel, scrape, and push snow (see Figure 1).

3.3 Snow plough

A snow grooming device that is installed at the rear end of a snow groomer, which crushes and compacts the surface of the snow track through the rotation of snow rollers (see Figure 1).

4.1 Environmental adaptability

4.1.1

The snow groomer shall be able to operate normally in environments with temperatures ranging from -40°C to 15°C and altitudes not exceeding 3000 m.

4.1.2

The snow groomer shall be able to start normally without using the auxiliary start function in environments at -15°C and above.

4.1.3

The snow groomer shall be equipped with a preheating auxiliary device for starting below -15°C, and shall ensure normal starting at an ambient temperature of -40°C.

4.1.4

The braking system shall ensure that environmental influences (such as moisture, snow, and ice) shall not cause it to fail.

4.2.1 Maximum productivity in snow pushing operation

The maximum productivity of the snow groomer in snow pushing operation shall meet the technical requirements specified in the operator's manual, and be tested according to 5.4.1.

4.2.2 Maximum productivity in snow grooming operation

The maximum productivity of the snow groomer in snow grooming operation shall meet the technical requirements specified in the operator's manual and shall be tested according to 5.4.2.

4.2.3 Maximum travel speed

The maximum travel speed of the snow groomer shall meet the technical requirements specified in the operator's manual and shall be tested according to 5.5.

4.2.4 Maximum climbing angle

The maximum climbing angle of the snow groomer shall meet the technical requirements specified in the operator's manual and shall be tested according to 5.6.

4.2.5 Continuous operating time

The fuel tank capacity of the snow groomer shall ensure a continuous operating time of no less than 8 h under normal operating conditions.

4.2.6 Reliability

After completing a 500-hour reliability test, the reliability evaluation indicators of the snow groomer shall meet the following requirements.

- a) Mean Time Between Failures (MTBF) no less than 200 h;
- b) Availability no less than 90%.

4.3.1 Safety sign

Clear and visible safety signs, distinctly different from the machine's color, shall be affixed near hazardous locations or within the designated operating area for hazard prevention. These safety signs shall comply with the provisions of GB/T 20178.

4.3.2 Lighting and visual field

4.3.2.1

The snow groomer shall be equipped with operating lights, positioned so that working attachments installed on the machine do not affect its performance. These lights shall provide sufficient illumination for the operating area and ensure the machine is easily visible and identifiable in darkness and low visibility conditions when moving forward and reversing.