

JB

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

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Air Hoists

气动葫芦

(English Translation)

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

1 Scope

This standard specifies the terms and definitions, types and basic parameters, technical requirements, test method, inspection rules, marking, packaging, transportation and storage of air hoists.

This standard applies to air hoists used in general environments, explosive gas environments, explosive dust environments. Air hoists used in other special environments can make reference to this document.

2 Normative references

The following documents are essential for the application of this document. For all referenced documents with dates, only the versions with dates apply to this document.

For all undated referenced documents, the latest versions (including all amendments) apply to this document.

GB/T 783 Lifting appliances - Range of maximum capacities for basic models

GB/T 3811 Design rules for cranes

GB 3836.1-2010 Explosive atmospheres - Part 1: Equipment - General requirements

GB/T 4205 Basic and safety principles for man-machine interface (MMI), marking and identification - Actuating principles

GB/T 5972 Cranes - Wire ropes - Care, maintenance, installation, examination and discard

GB 6067.1 Safety rules for lifting appliances - Part 1: General

GB/T 7932 Pneumatic fluid power - General rules relating to systems

GB 8918 Steel wire ropes for important purpose

GB/T 9286 Paints and varnishes - Cross cut test for films

GB/T 10051.1 Lifting hooks - Part 1: Mechanical properties, lifting capacities, stresses and materials

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Air hoist

A hoist that is composed of an air motor, a reducer, a brake, a winch, etc., which finally winds up the lifting rope through reel or winds up the lifting chain through sprocket, to drive the lifting device up and down.

3.2 Air wire rope hoist

Air hoist with wire rope as the reeling flexible part.

4.1.1 Type classification

According to whether the air hoist has an operating mechanism and the type of operating mechanism, it can be divided into fixed air hoist, single-beam trolley air hoist, double-beam trolley air hoist.

4.1.2 Fixed type

A fixed air hoist without an operating mechanism. According to the different installation methods, it is divided into two types (see Figure 1 and Figure 2).

4.1.3 Single beam trolley type

An air hoist with a running mechanism that runs along a single beam track. The driving type of the running mechanism can be set according to user requirements, such as air motor or sprocket hand pull, hand push drive, etc. (see Figure 3 and Figure 4).

4.2.1 Working level

The working level of the air hoist lifting mechanism is divided into 8 levels from M1 to M8 according to the provisions of GB/T 3811, based on the load state level and mechanism load spectrum coefficient, use level, and total use time, as shown in Table 1. Unit. meters

4.2.4 Lifting speed

The lifting speed shall preferably adopt the values specified in Table 4; the slow speed is recommended to be $1/2 \sim 1/10$ of the fast speed. The winding line speed of the explosion-proof air hoist wire rope and drum or chain and sprocket shall not be greater than 25 m/min.

4.2.6 Running speed

The running speed shall preferably adopt the value specified in Table 5; the slow speed is recommended to be $1/2 \sim 1/10$ of the fast speed. The running speed of the explosion-proof air hoist trolley on the track shall not exceed 25 m/min.

5.1 Working environment conditions

5.1.1

The air pressure fluctuation range of the air hoist's air supply source shall not exceed $\pm 10\%$ of the rated air pressure.

5.1.2

The quality grade of the gas medium shall meet the requirements of Table 4 in JB/T 5967-2007 for the quality grade of the air medium of heavy-duty pneumatic motors.

5.2 Basic requirements

The design of air hoists shall meet the relevant provisions of GB/T 3811, GB 6067.1 and this standard.

5.3 Use performance

5.3.1

Air hoists of corresponding working levels shall be reasonably selected according to the use level and load state in use (see Table 1). The working level of explosion-proof air hoists shall not exceed A.5.

5.3.5

Air hoists with running mechanisms shall be able to meet the following performance requirements under rated air pressure and rated load.

5.3.6

Under rated load, when the lifting speed is less than or equal to 0.5 m/min, the lifting mechanism's braking slippage shall not be greater than 5 mm; when the lifting speed is greater than 0.5 m/min, the lifting mechanism's braking slippage shall not be greater than $v/100$ (v is the stable lifting distance within 1 min under rated air pressure and rated load); meanwhile it shall not be greater than 200 mm.

5.4 Safety and hygiene

5.4.1

For air hoists with a rated lifting capacity of 1 t ~ 10 t, the lifting mechanism shall be equipped with a safety clutch; for air hoists with a rated lifting capacity greater than 10 t, the lifting mechanism shall be equipped with a safety clutch or the air hoist body shall be limited in air pressure to prevent overloading. The load limit value shall be within the range of 1.1 ~ 1.3 times the rated lifting capacity.