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PROFESSIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

JB/T 5949-1991

Construction machinery shoe brake Technical conditions

工程机械蹄式制动器 技术条件

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Construction machinery shoe brake

Technical conditions

1 Subject contents and application scope

This Standard specifies the technical requirements, test methods, inspection rules, marking, packaging, transportation and storage for shoe brake of wheel type construction machinery traveling crane brake system.

This Standard applies to shoe brake of wheel cranes, loaders, scrapers, backhoe loaders and other wheel engineering machinery traveling crane brake system (hereinafter referred to as the brake).

2 Normative references

JB 3935 Automotive brake--Performance requirements

JB/T 5937 Engineering machinery--General technical specifications for gray pig iron parts

JB/T 5938 Engineering machinery--General technical specifications for ductile iron castings

JB/T 5944 Engineering machinery--General technical specifications for heat-treated work pieces

JB/T 5936 Engineering machinery--General technical specifications for mechanical processed parts

JB/T 5943 Engineering machinery--General technical specifications for weldments

JB/T 5945 Engineering machinery--General technical specifications for assembling

JB/T 5947 Engineering machinery--General technical requirements for packaging

JB 8 Product plates

GB 5763 Brake linings for automobiles

GBn 257 Car brake lining (Supplement for shape, friction performance and impact strength)

JB 2805 Trucks and buses—Brake—Bench test methods

GB 2828 Sampling procedures and tables for lot-by-lot inspection by attributes (Apply to inspection of successive lots or batches)

3 Technical requirements

Brake products shall comply with the provisions of this Standard and be manufactured according to the product drawings and technical documents approved by specified procedures, if there is any special requirements, it shall be executed according to the agreement between the user and the manufacturer.

3.1 Performance requirement

3.1.1 The initial braking speed of brake for the first, second and third effective performance tests is 20km/h, when the brake line pressure is the maximum value specified by the manufacturer, the braking torque of braking output shall not be less than the rated value.

3.1.2 During the first, second and third effective performance tests, the difference of the braking torque output - BETWEEN the initial braking speed is 40km/h AND the initial speed is 20km/h - shall not be more than 10%, counted in percentage.

3.1.3 Other performance requirements for the brake shall be consistent with the relevant provisions of JB 3935, and the performance requirements are shown in Table 1.

3.2 Materials

The raw materials used by the brakes shall have a formal mark and a certification of the manufacturing plant. The manufacturer shall carry out random checks, and the brakes can only be used after the qualification is confirmed.

3.3 Supporting parts and purchased parts

The supporting parts and purchased parts used by the brake must have product

Annex B

Calculation method of rotational inertia

(Supplement)

B1 Calculation of rotational inertia

B1.1 When making brake test for double front wheels brake test at the same time, computational formula is as follows:

$$I_Q = G_1 \beta r^2 \qquad \cdots\cdots (B1)$$

Where: I_Q — Rotational inertia when making brake test for double front wheels brake test at the same time, N•m^2;

G_1 — Front axle load at empty-load transport position, N;

r — Rolling radius of tire, m;

β — Front axle load transfer coefficient when empty-load braking.

B1.2 When Brake test is conducted for single front wheel, computational formula is as follows:

$$I_F = \frac{G_1 \beta r^2}{2} \qquad \cdots\cdots (B2)$$

Where: I_F — Rotational inertia when making brake test for single front wheel, N•m^2

$$\beta = 1 + \psi \frac{h_g}{b} \qquad \cdots\cdots (B3)$$

Where ψ — Adhesion coefficient of road surface;

h_g — Height of center of gravity at empty-load transport position, m;

b — The distance between center of gravity and rear axle, m.

Annex C

Records and reports of bench test

(Reference)

Table of Integral machine parameters and brake parameters

Vehicle model _____ Manufacturer _____ Exit-factory date _____

Machine quality at empty-load transport position _____ kg

Tire type _____ Rolling radius _____ m

Axle load distribution:

Empty-load transport position, front _____ N Rear _____ N

Full-load transport position, front _____ N Rear _____ N

Height of center of gravity: At empty-load transport position _____ m

At full-load transport position _____ m

Position of center of gravity: The distance from the rear axle at empty-load transport position _____ m

The distance from the rear axle at full load-transport position _____ m

Wheelbase _____ m Maximum speed _____ km/h

Brake type: Front _____ Rear _____

Brake manufacturing plant _____ Exit-factory date _____

Driving method of brake: Front _____ Rear _____

Diameter of brake wheel cylinder: Front _____ Rear _____

Maximum brake line pressure _____ MPa

Braking force ratio of front and rear axle _____

Rated braking torque: Front _____ N • m

Rear _____ N • m

Trademark of friction material _____ Manufacturer _____ Exit-factory date _____

The gap between friction lining pad and brake drum: Front _____ mm

Rear _____ mm

Trademark of brake fluid _____ Manufacturer _____ Exit-factory date _____

Additional explanation

This Standard is proposed and administered by Tianjin Research Institute of Construction Machinery of the Ministry of Machinery and Electronics Industry.

This Standard is drafted by Tianjin Construction Machinery Research Institute, Yingkou Construction Mechanical Clutch Factory and Xuzhou Construction Machinery Bridge Box Factory.

Main drafters of this Standard are: Yang Xiuwen, Chen Shurong, and Wang Zhongru.

References and Original Chinese Documents

[1] JB/T 5949 Construction Machinery shoe brakes technical conditions

http://www.chinesestandard.net/Default.aspx?StdID=JB/T%205949

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