JB/T 5949-1991

Translated English of Chinese Standard: JB/T5949-1991
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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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Issued on: December 12, 1991 Implemented on July 01, 1992

Issued by: Ministry of Mechanical Electronics Industry of People's Republic of China

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PROFESSIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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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 brakePerformance requirements						
JB/T 5937	Engineering machineryGeneral technical specifications for gray pig iron						
parts							
JB/T 5938	Engineering machineryGeneral technical specifications for ductile iron						
castings							
JB/T 5944	Engineering machineryGeneral technical specifications for heat-treated						
work pieces							
JB/T 5936	Engineering machineryGeneral technical specifications for mechanical						
processed parts							
JB/T 5943	Engineering machineryGeneral technical specifications for weldments						
JB/T 5945	Engineering machineryGeneral technical specifications for assembling						
JB/T 5947	Engineering machineryGeneral 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:

$$I_{Q} = G_1 \beta r^2$$
(B1)

Where: I_Q — Rotational inertia when making brake test for double front wheels brake test at the same time, N•m²;

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

r — Rolling radius of tire, m;

\[
\beta - \text{Front axle load transfer coefficient when empty-load braking.}
\]

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

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

Where: I_F — Rotational inertia when making brake test for single front wheel, N•m²

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

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.

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Annex C

Records and reports of bench test

(Reference)

Table of Integral machine parameters and brake parameters

Vehicle model	Manufacturer	E	xit-factory date	
Machine quality at empty-loa	d transport position_			kg
Tire type	Rolling radius			m
Axle load distribution:				
Empty-load transport position	n, front	N	Rear	N
Full-load transport position, f	ront	N	Rear	N
Height of center of gravity: A	t empty-load transpor	t position_		m
A	t full-load transport po	sition	_	m
Position of center of gravity	: The distance from	the rear a	xle at empty-load	l transport
position				m
The distance from the rear as	kle at full load-transpo	ort position_		m
Wheelbase	m Maximu	ım speed		km/h
Brake type: Front		_Rear		
Brake manufacturing plant		Exit-fac	tory date	
Driving method of brake: Fro	nt	Rear		
Diameter of brake wheel cyli	nder: Front	_Rear		
Maximum brake line pressure	e			MPa
Braking force ratio of front ar	nd rear axle			
Rated braking torque: Front_				N • m
Rear_				N • m
Trademark of friction materia	IManufact	urer	Exit-factory da	ate
The gap between friction lining	ng pad and brake drur	m: Front		mm
		Rear		mm
			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

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