

JAPANESE INDUSTRIAL STANDARD

JIS
B8815-1987

Electric Chain Hoists

ERRATUM

Page	Position	Wrong	Correct
23	Reference Table Check criteria (Load Chain)	pitch elongation of 30 % min	pitch elongation of 3 % min

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JIS B 8815—1987

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Electric Chain Hoists

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1. Scope

This Japanese Industrial Standard specifies electric chain hoists for lifting and lowering a load, using a three-phase motor and decelerating the rotation of a load sheave with which a load chain of links is engaged, hereinafter referred to as the "chain hoists".

This standard also applies to a chain hoist with which a trolley can be traversed.

Remark: The units and numerical values in { } are based on traditional units and are to be regarded as the standard.

2. Classification

2.1 Classification by Rated Load Chain hoists shall be classified according to their rated loads as specified in Table 1.

Table 1. Rated Load

Rated load kN {kgf}	1.6	2.5	5	7.5	10	16	20	25	31.5
	{160}	{250}	{500}	{750}	{1 000}	{1 600}	{2 000}	{2 500}	{3 150}
	40	50	75	100	160	200			
	{4 000}	{5 000}	{7 500}	{10 000}	{16 000}	{20 000}			

Remark: Chain hoists may be classified in accordance with Attached Table.

2.2 Classification by Suspension System Chain hoists shall be classified into the following three types according to their suspension system.

- (1) Hanging type (see Fig. 1)
- (2) Trolley type ⁽¹⁾ (see Fig. 2)
- (3) Hoist-trolley unit type ⁽²⁾ (see Fig. 3 and Fig. 4)

Notes ⁽¹⁾ The hoist is hung from a trolley with the upper hook.

⁽²⁾ The hoist and the trolley are united directly without the upper hook.

Applicable Standards and Reference Standards: See page 17.

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2.3 Classification by Trolley Driving System
following three types:

This classification shall be the

- (1) Motor drive traverse (see Fig. 4)
- (2) Chain drive traverse (see Fig. 3)
- (3) Hand drive traverse (see Fig. 2)

Fig. 1. Hanging Type (Example)

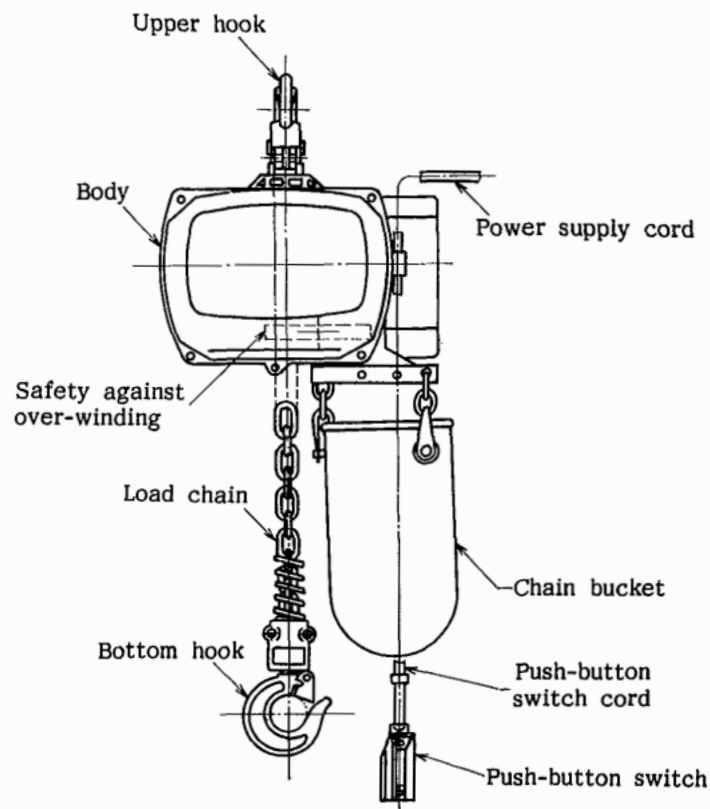


Fig. 2. Trolley Type
(Hand Drive Traverse)
(Example)

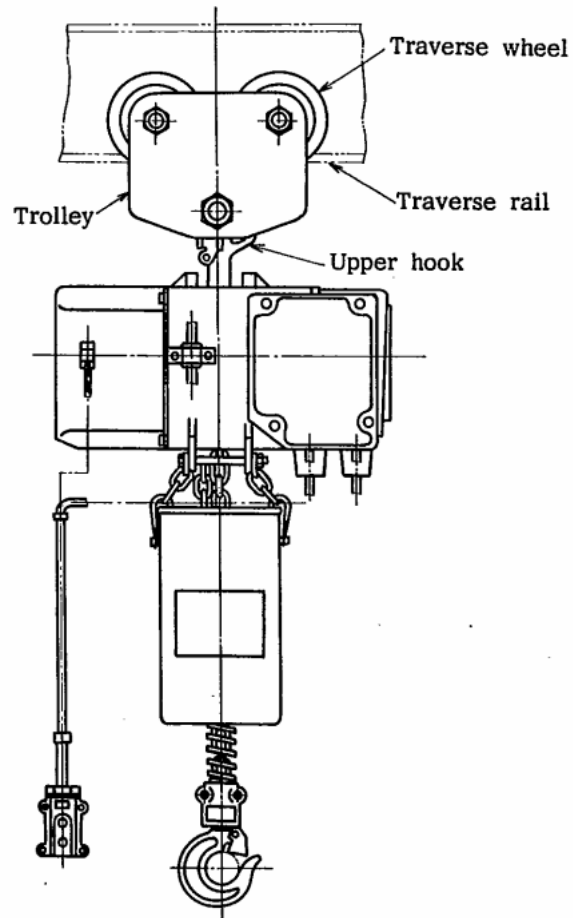


Fig. 3. Hoist-Trolley Unit Type
(Chain Drive Traverse) (Example)

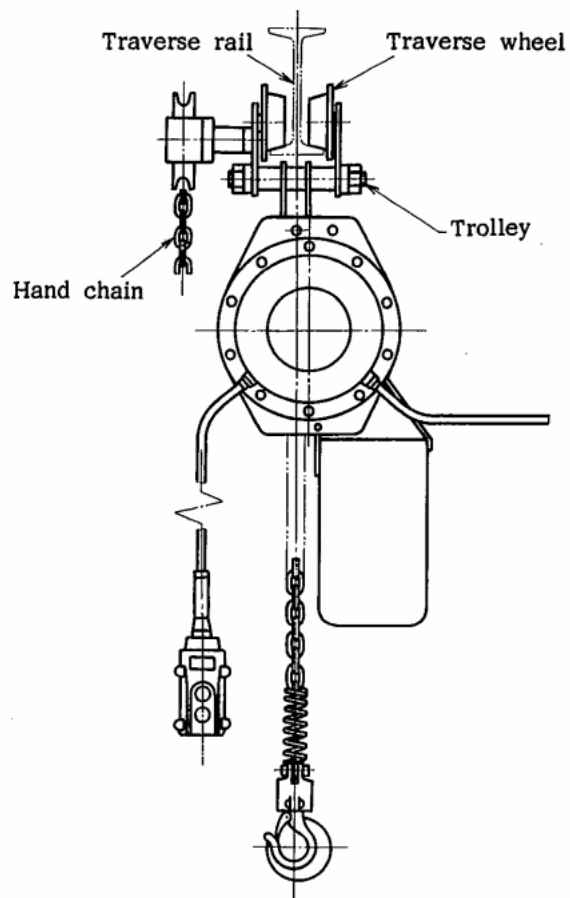
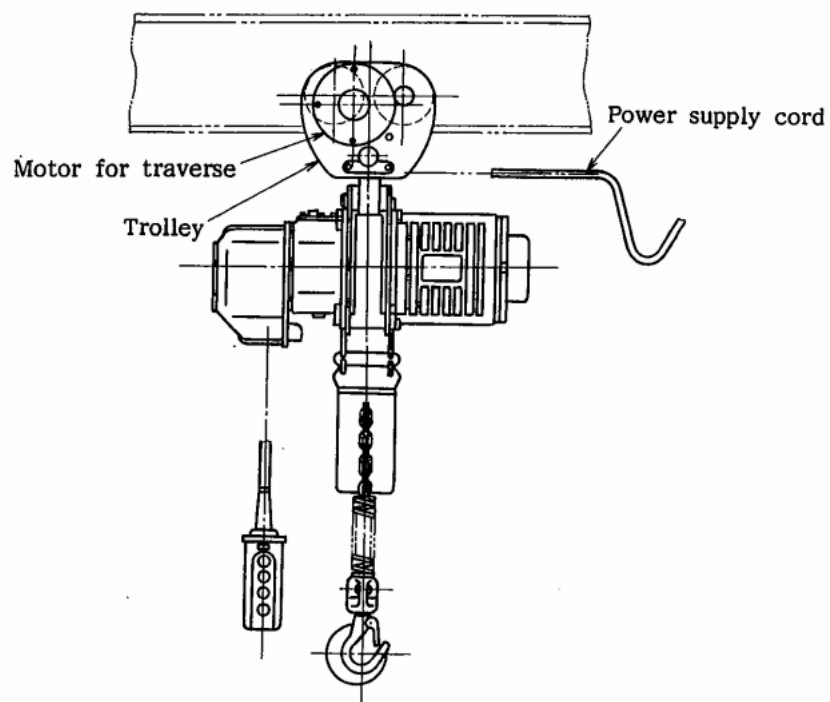


Fig. 4. Hoist-Trolley Unit Type
(Motor Drive Traverse) (Example)



3. Rating

3.1 Rated Voltage · Rated Frequency Rated voltages and rated frequencies shall be 200 V · 50 Hz, 200 V · 60 Hz or 220 V · 60 Hz.

3.2 Grade Chain hoists shall be graded as given in Table 2, with respect to mechanical parts such as gears and bearings, according to the load rate and running time.

Table 2. Grade

Load rate	Grade						
	Mean running time per day h	0.25 or under	Over 0.25 to 0.5 incl.	Over 0.5 to 1 incl.	Over 1 to 2 incl.	Over 2 to 4 incl.	Over 4 to 8 incl.
	Total running time h	400 or under	Over 400 to 800 incl.	Over 800 to 1600 incl.	Over 1600 to 3200 incl.	Over 3200 to 6400 incl.	Over 6400 to 12500 incl.
Light	Use at about 1/3 of rated load usually and at rated load rarely.	I	I	II	III	IV	V
Middle	Use at about 1/3 to 2/3 of rated load usually and at rated load at times.	I	II	III	IV	V	—
Heavy	Use at 2/3 of rated load or over usually and at rated load many times.	II	III	IV	V	—	—
Very heavy	Use at rated load or near load almost all the time.	III	IV	V	—	—	—

3.3 Classification of Motor Rating Motor ratings shall be classified into short-time rating and intermittent periodic rating.

- (1) The short-time rating shall be as specified in Table 3.
- (2) The intermittent periodic rating shall be expressed as the load time rate (% ED) that is the rate of the load time to the sum of the load time and the rest time. The relationship between a load time rate and the maximum value of starting times in it shall be as given in Table 4.

Table 3. Short-Time Rating

Unit: min					
Type of motor					
Motor for lifting			Motor for traversing		
7.5	10	15	20	30	

Table 4. Intermittent Periodic Rating

Intermittent periodic rating	Type of Motor											
	Motor for lifting						Motor for traversing					
Load time rate %ED	15	20	25	30	40	50	10	15	20	25	30	40
Maximum starting times time/h	90	120	150	180	240	300	60	90	120	150	180	240

4. Performance

4.1 Minimum Distance Between Hooks The minimum distance between hooks shall be as shown in Fig. 5 and Fig. 6, and shall not exceed the indicated value ⁽³⁾.

Note ⁽³⁾ The indicated value refers to the value indicated in catalogues, specifications, nameplates, and the like.

4.2 Lifting Range The lifting range shall be the distance shown in Fig. 5 and Fig. 6, which refers to the maximum distance between the highest and lowest positions where the rated load can respectively be lifted and lowered at the rated voltage and the rated frequency, and shall be within the range $+5\%$ of its indicated value ⁽³⁾.

4.3 Temperature Rise The temperature rise of the winding ⁽⁴⁾ of electric motors and electromagnetic brakes shall be as follows:

Further, the reference ambient temperature shall be 40°C.

Note ⁽⁴⁾ For motors for traversing (including electromagnetic brakes), the value obtained from the test on the motor only shall be used.

- (1) For short-time rating, the motor shall be continuously run for the period of time given in Table 3 in accordance with 6. of JIS B 8810, and the temperature rise measured by the thermometer method or the resistance method prescribed in JIS C 4004 shall not be greater than the value given in Table 5.
- (2) For intermittent periodic rating, the motor shall be run periodically at the rated voltage and the rated frequency and under 63 % of the rated load in accordance with 6. of JIS B 8810, until the temperature has been reached in a constant state at the load time rate and the maximum value of starting times. The temperature rise measured by the thermometer method or the resistance method prescribed in JIS C 4004 shall not be greater than the value given in Table 5.

Table 5. Limits of Temperature Rise

Unit: °C

Classification		Thermometer method	Resistance method
Winding of motor	Class E insulation	65	75
	Class B insulation	70	80
	Class F insulation	85	100
Winding of electromagnetic brake	Class E insulation	80	100
	Class B insulation	90	110
	Class F insulation	115	135

4.4 Starting Voltage After temperature rise, the chain hoist shall be capable of starting at 90 % of the rated voltage and the rated frequency and of lifting, lowering and traversing the rated load.

4.5 Lifting Speed and Traversing Speed The lifting speed of chain hoists and the traversing speed of their motor traverse type shall be within $\pm 10\%$ of the indicated values ⁽³⁾.

Fig. 5. Minimum Distance between Hooks and Lifting Range (Hanging Type) (Example)

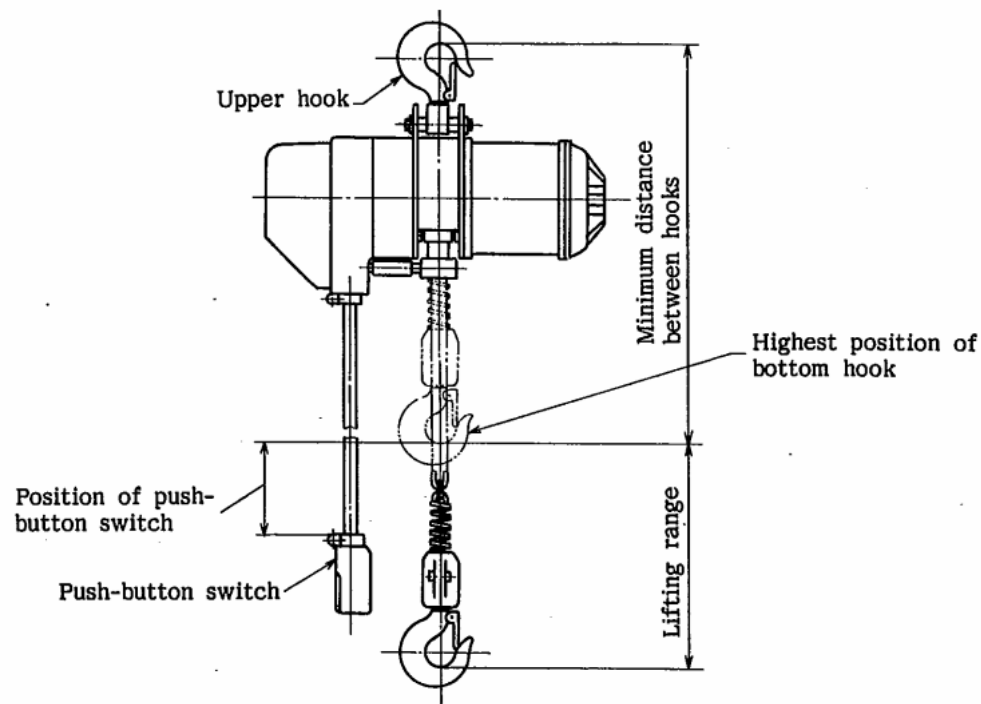
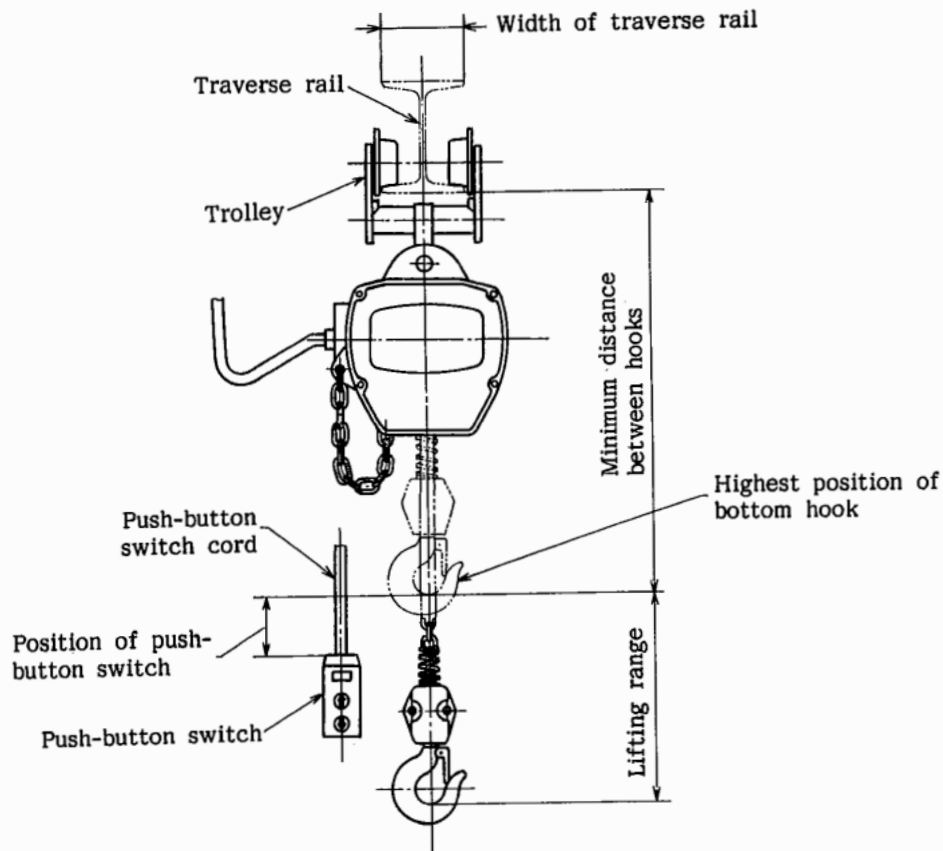


Fig. 6. Minimum Distance between Hooks and Width of Traverse Rail (Hoist-Trolley Unit Type) (Example)



4.6 Brake Brakes of the body of chain hoists shall be as follows:

- (1) The value of braking force shall be not less than 150 % of the braking force at the rated load.

Remark: When both of the mechanical braking and electromagnetic braking are applied, the value of braking force may be the total value of both forces.

- (2) When the rated load is lowered by 0.2 m or more and the current of the motor for hoisting is shut off, the further descending distance of the load shall not be more than 1 % of the load lifting distance in one minute.

4.7 Safety against Over-winding When the load chain is over-wounded or over-unwounded, the safety against over-winding being in operation, the over-winding or over-unwinding shall be prevented by the device.

4.8 Overload When a load corresponding to 125 % of the rated load is lifted and lowered by 0.5 m or more consecutively three times at the rated frequency, there shall be no abnormality in every part of the chain hoist.