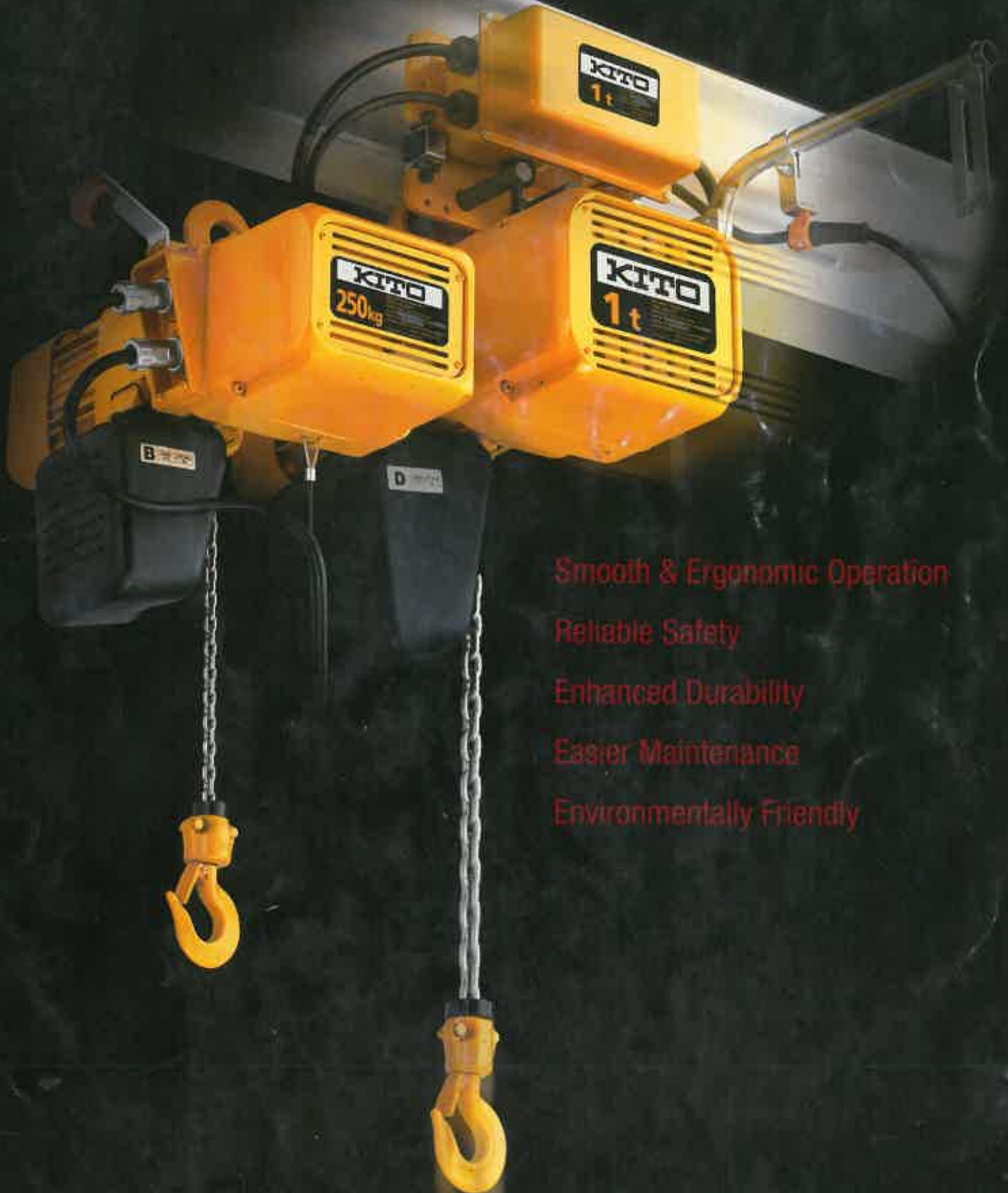


Smooth & Ergonomic Operation, Reliable Safety, Enhanced Durability

KITO ELECTRIC CHAIN HOIST ER2



Smooth & Ergonomic Operation

Reliable Safety













Enhanced Durability

Easier Maintenance

Environmentally Friendly

Dual speed inverter hoist provided as standard*

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*Except for specific voltage

KITO ELECTRIC CHAIN HOIST **ER2**

The new KITO electric chain hoist ER2 has been released as a product that further builds upon KITO's previous ER series. Seeking improved ease of use and work efficiency, an inverter has been provided as standard in a dual speed hoist and trolley. The dual speed inverter delivers smoother movement than ever, reducing load swing.

To ensure safety, KITO utilizes a double safety mechanism consisting of an originally developed friction clutch and upper-lower limit switch. Uniquely-designed push button control on the basis of ergonomics, enhanced durability of load chain, improved ease of maintenance as well as support for the environment achieve higher safety and working efficiency. These products, therefore, provide long-period stable operation, which is essential for improving production efficiency. Due to further improved durability, the increased product service life and reduced running costs have resulted in minimizing the lifetime cost.

KITO electric chain hoists have sought the industry's top level of safety, durability and ease of maintenance, and to continue as highly trusted products selected around the world, the evolution of KITO electric chain hoists continues.

Dual Speed Inverter Hoists with capacities up to 500kg

Hoist Classification **M6 (ISO)**
3m (FEM)

The durability of mechanical components such as gears and bearings is twice higher than M5 (ISO) 2m (FEM)!

ER2 with hoist inverter enables smoother starting and stopping.
The total duration of use is 3200 hours (subjected regularly to the maximum load).
The increased duration provides better value and performance.



Compact Body

Light weight

The compact aluminum die-cast body has exceptional rigidity as well as, high dust-protection and water-protection. It has a simple structure with a small number of parts. Fine-tuned profile of the load chain link benefits loss of the hoist body weight compared to the previous ER.

Previous ER

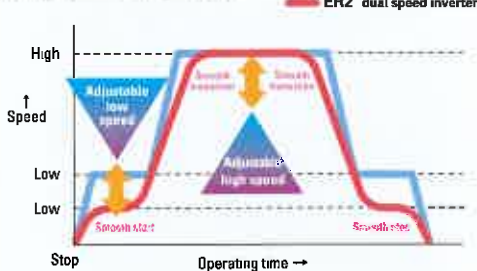


ER2 Outline

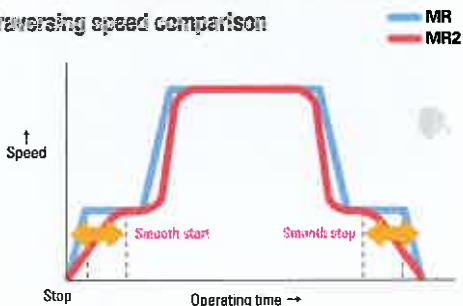
Rated capacity:	Single speed – 125 kg to 20 t
	Dual speed – 125 kg to 5 t
Voltage:	220-230 V 50/60Hz
	380-415 V 50 Hz 380-440 V 60 Hz
	500 V 50 Hz (pole change for dual speed) 460 V 60 Hz (for specific regions)
Control voltage:	24 V (110 V for specific regions)
Duty rating:	Single speed – 60% ED (60 min.)
	Dual speed – 40/20% ED (30/10 min.)
Classification:	M4, M5, M6 (ISO); 1 Am, 2m, 3m (FEM); H4 (ASME)
Motor insulation:	Class B for 220-230-50/60 and 500-50 (460-60)
	Class F for 380-415-50 and 380-440-60
Enclosure:	Hoist body – IP55, Push button control - IP 65
Suspension varieties:	Hook, manual trolley, motorized trolley
Operating temperature:	-20 to 40 °C (-4 to 104 °F)
Operating humidity:	85%RH or less

Smooth & Ergonomic Operation

Lifting speed comparison



Traversing speed comparison



Inverter

smooth transitional speed

The dual speed inverter delivers smoother movement than the pole change motor, reducing load swing. The high to low speed ratio can be set to a large value. This results in smooth starts, improved low speed stops, and improved positioning accuracy. The standard speed ratio is 6:1 adjustable up to 12:1* for lifting and 10:1* for traversing.

ER2/MR2 inverter unit is well-customized for lifting/traversing applications including exclusive software with optimum control and is also provided with measures against impact and heat which were verified through long run tests.

*For a speed ratio other than the standard, please make a request at the time of placing an order.

Accelerating and decelerating time in addition to speed are adjustable for dual speed inverter trolley.

Push button control **original design**

The push button control is designed in an ergonomic shape that is operator friendly. Seeking ease of operation and universal design, KITO's original push button control was designed and manufactured based on trial and error repeated many times, in particular, upgrading prototypes and evaluation from an enduser point of view especially with respect to unit strength.



Contoured to comfortably fit into your hand. The button has a light operating sensation which responds to fine adjustments in pressure. The pressing stroke is short. The operator, therefore, will not become fatigued after long-periods of operation.



Back lug for firm grip



As for a crane fabrication with a motorized end truck, a control box is available if necessary.

Resistant to the collisions and shocks that may occur during work, KITO's original push button control can be used in various environments, thus supporting efficient work.



Load sheave **reduced vibration**

Increasing the number of load sheave pockets helps relieve vibrations produced by the revolving polygonal sheave on the hoist's body and load chain.



Reliable Safety

Friction clutch & upper-lower limit switch **double safety**

Maintaining safety is the most important task for lifting equipment, and is essential for stable operation. To ensure safety, KITO utilizes a double safety mechanism consisting of an originally developed friction clutch and upper-lower limit switch.

The friction clutch is an emergency overload protection device that idles the motor when subjected to an excessive load over the rated capacity. Friction clutch performance is not easily compromised with changes in the surrounding temperature. In the case of irregular loading, this operates in advance to prevent the hoist body or load chain from being damaged.



In the event that a load is lifted or lowered excessively, the limit switch stops the motor, preventing hoist or load chain damage. (Not regular use)

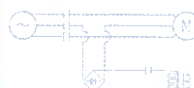


Thermal protector

To prevent the motor from burning out due to excessive usage, a standard thermal protector is installed in the motor.

Electromagnetic brake **fail-safe connection**

Connected in series to a motor circuit, a current-driven electromagnetic brake does not release unless the motor is energized. This concurrent drive increases safety of the circuit compared to separate circuits for the motor and the brake.



Emergency stop

The emergency stop, provided as standard, allows the motor power to be disconnected in an emergency without cutting off the main power supply.

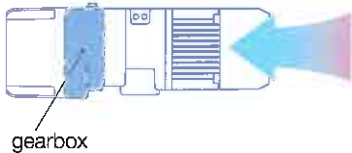


Enhanced Durability

High end duty rating

The ER2 achieves M6(ISO)/3m(FEM) class (refer to section of "Hoist Classifications"), with a duty cycle of 60% ED. Supporting use in the most demanding environments and conditions, this long service life hoist is a heavy-duty product which is also applicable to high frequency or long lift operations.

The gearbox is lubricated in an oil bath. As a result of this, wear and tear has been improved and cooling has also been enhanced at the same time.



Unique motor frame fins & fan cover

A unique fan-cooled motor with motor frame fins and a fan cover have been configured into a purpose built design. This design produces a much quieter motor unit as well as enhanced fan cooling capabilities.



Load chain **super strength**

KITO's world class original super-strength nickel-plated load chain certified by German Institute, uses unique technology to greatly increase resistance to fatigue and wear.



Load chain wear comparison

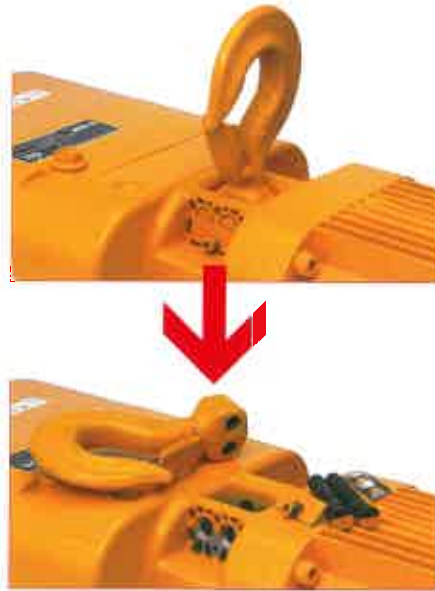


At KITO, testing is continuously being carried out regarding the load chain fatigue, wear, tensile strength, and environment. KITO takes pride in manufacturing load chains that have strength, durability and accuracy for utilization in the product. **ER2 chains are not compatible with that of the previous ER hoist series due to a difference of their chain profile.**

Easier Maintenance

Connecting shaft & cover belt

The connecting shaft that was previously attached inside the body is now mounted on the outside of the ER2. This allows a top hook or suspender to be attached or removed with ease.



The electric parts and equipment are contained inside the controller cover. Therefore, inspection and parts replacement can be accomplished easily. The controller cover is connected to the hoist body using a cover belt so that maintenance can be carried out more easily.



CH (counter hour) meter

As a standard feature, the hoist's total on-time and the number of lowering starts are shown on the LCD of the CH meter. This enables the user to carry out maintenance based upon the frequency of use. By maintaining a history of the CH meter data, the inspection periods and replacement periods for gear oil, contactors, brakes and load chains can be efficiently controlled, allowing the equipment to be used with confidence.



Dual speed



Single speed

Environmentally Friendly

No hazardous substances

As an environmental measure, several environmentally hazardous substances specified by KITO, including 6 European RoHS directive substances, are not used.

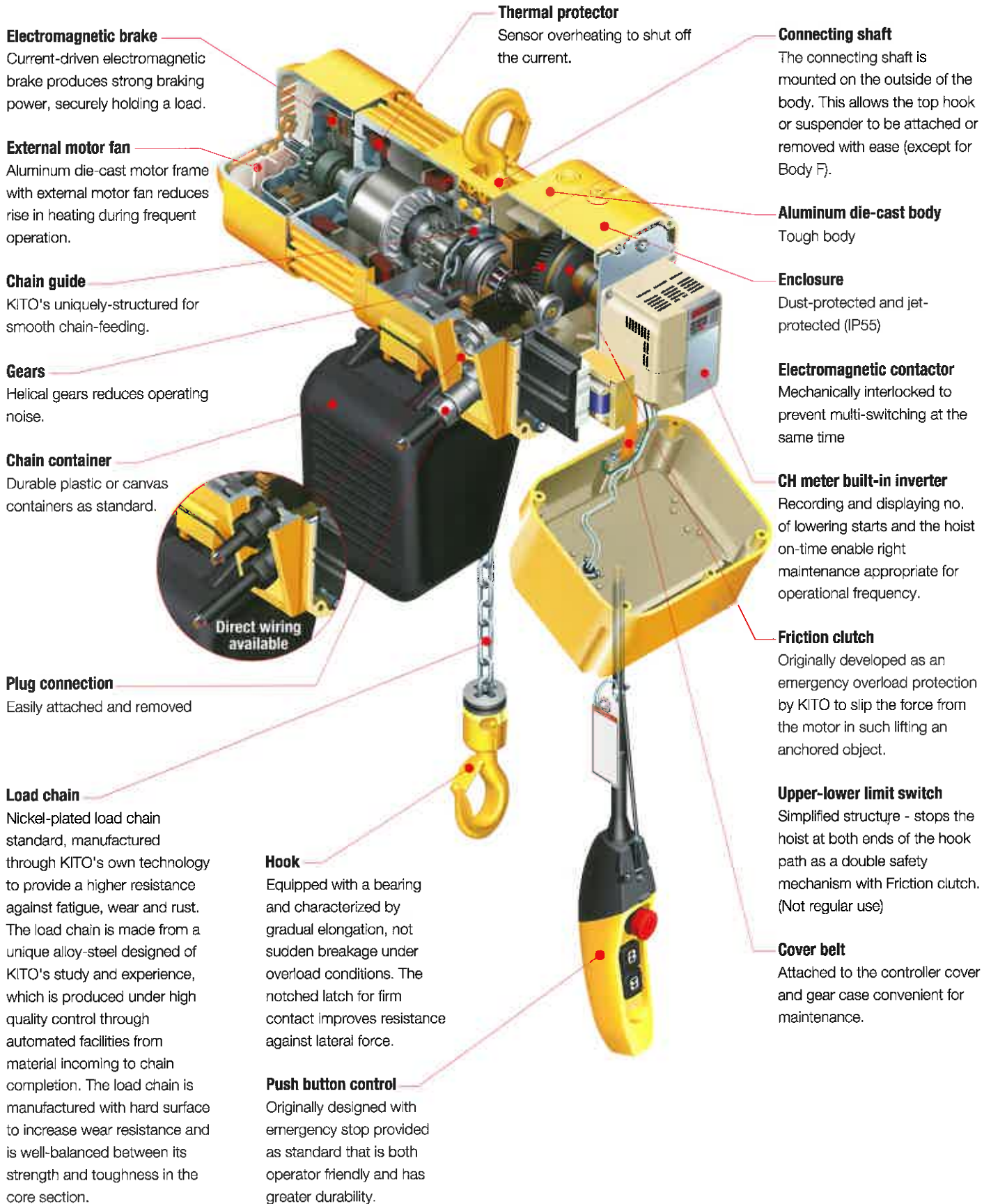
Energy saving

Further, an energy-savings can be made due to reduction in rated current draw compared to the previous ER.

Lower noise

The utilization of the inverter, 4-pole motor as well as the electromagnetic brake, reduces the noise during operation and braking.

ER2 Electric Chain Hoist



ER2 Electric Chain Hoist Lineup

Type	Lifting speed		Capacity (t)														
			125kg	250kg	500kg	1	1.5	2	2.5	3	5	Large capacity					
													7.5	10	15	20	
Hook suspension ER2	Single	Low			•	•			•								
		Standard		•	•	•	•	•	•	•	•			•	•	•	
		High	•	•													
	Dual inverter	Low			•	•			•								
		Standard		•	•	•	•	•	•	•	•						
		High	•	•													
Trolley suspension Motorized trolley ER2M Plain Trolley ER2SP (up to 5t) Geared Trolley ER2SG	Single	Low			•	•			•					•			
		Standard		•	•	•	•	•	•	•	•		•	•	•	•	
		High	•	•													
	Dual inverter	Low			•	•			•								
		Standard		•	•	•	•	•	•	•	•						
		High	•	•													

KITO will not be held liable for any malfunction, lack of performance or accident if the product is being used in conjunction with any other equipment. If the product is to be used for unintended purposes, please confirm with your dealer in advance.

Trolleys

Motorized Trolley MR2

Bearing built-in side rollers provide smooth running through the minimum radius curve and excellent traversing performance with preventive derailment.

Features

- Simple gear box construction
- Improved balance due to a lighter weight geared motor
- Speed variations
 - Single Low Speed
 - Single Standard Speed
 - Dual Speed

Plain & Geared Trolley

- Designed to provide smooth and easy traversing.
- Lugs provide protection from striking damage against rail stoppers, and from falling off the rail.
- Wheel flanges also prevent derailment.

Plain Trolley TSP

Designed for light load manual applications (125kg to 5t)

Geared Trolley TSG

Designed for precise positioning and traversing by using hand chain (125kg to 20t)

Motorized Trolley MR2



Plain Trolley TSP



Geared Trolley TSG



ER2 Electric Chain Hoist Lineup

Type	Lifting speed		Capacity (t)														
			125kg	250kg	500kg	1	1.5	2	2.5	3	5	Large capacity					
													7.5	10	15	20	
Hook suspension ER2	Single	Low			•	•			•								
		Standard		•	•	•	•	•	•	•	•				•	•	•
		High	•	•													
	Dual inverter	Low			•	•			•								
		Standard		•	•	•	•	•	•	•	•						
		High	•	•													
Trolley suspension Motorized trolley ER2M Plain Trolley ER2SP (up to 5t) Geared Trolley ER2SG	Single	Low			•	•			•						•		
		Standard		•	•	•	•	•	•	•	•			•	•	•	•
		High	•	•													
	Dual inverter	Low			•	•			•								
		Standard		•	•	•	•	•	•	•	•						
		High	•	•													

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Motorized Trolley MR2



Plain Trolley TSP



Geared Trolley TSG



Lifting & Traversing Speed

Lifting Speed

(m/min)

Capacity (t)	Single Speed						Dual Speed					
	50 Hz			60 Hz			50/60 Hz*			500 V		
	Low	Standard	High	Low	Standard	High	Low	Standard	High	Low	Standard	High
125kg			14.1			16.9			1.4 to 16.6			14.2/3.5
250kg		9.1	13.4		10.9	16.1		0.9 to 10.8	1.3 to 15.7		7.2/1.8	
500kg	3.8	7.3		4.6	8.8		0.4 to 4.5	0.7 to 8.5		3.6/0.9	7.1/1.8	
1	3.5	7.1		4.2	8.5		0.3 to 4.2	0.7 to 8.2		3.5/0.9	7.2/7.1	
1.5		4.5			5.4			0.4 to 5.3			4.8/1.2	
2	3.7	7.0		4.4	8.4		0.4 to 4.3	0.7 to 8.2		3.7/0.9	6.9/1.6	
2.5		5.7			6.8			0.6 to 6.6			5.5/1.3	
3		4.4			5.3			0.4 to 5.2			4.4/1.0	
5		2.9			3.5			0.3 to 3.3			2.8/0.6	
7.5		1.9			2.3							
10	1.4	2.9		1.7	3.5							
15		1.9			2.3							
20		1.4			1.7							

Note: The speed ratio of inverter hoists is preset to 6:1 in KITO factory.

Traversing Speed

(m/min)

Capacity (t)	Single Speed				Dual Speed	
	50 Hz		60 Hz		50/60 Hz*	500 V
	Low	Standard	Low	Standard	Standard	Standard
125kg to 5	10	20	12	24	2.4 to 24	20/10
7.5 to 20	10		12			


Note: The speed ratio of inverter trolleys is preset to 6:1 in KITO factory.

Product Code

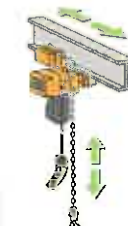
Type

ER2M010IS-IS

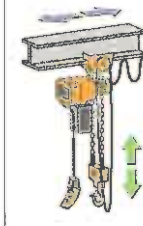
ER2




ER2M (ER2+MR2)



ER2SG (ER2+TSG)



ER2SP (ER2+TSP)



Capacity

Code	Capacity
001	125 kg
003	250 kg
005	500 kg
010	1 t
015	1.5 t
020	2 t
025	2.5 t
030	3 t
050	5 t
075	7.5 t
100	10 t
150	15 t
200	20 t

Lifting speed

Code	Lifting speed
S	single, standard
L	single, low
H	single, high
IS	inverter dual, standard
IL	inverter dual, low
IH	inverter dual, high
SD	dual, standard
LD	dual, low
HD	dual, high

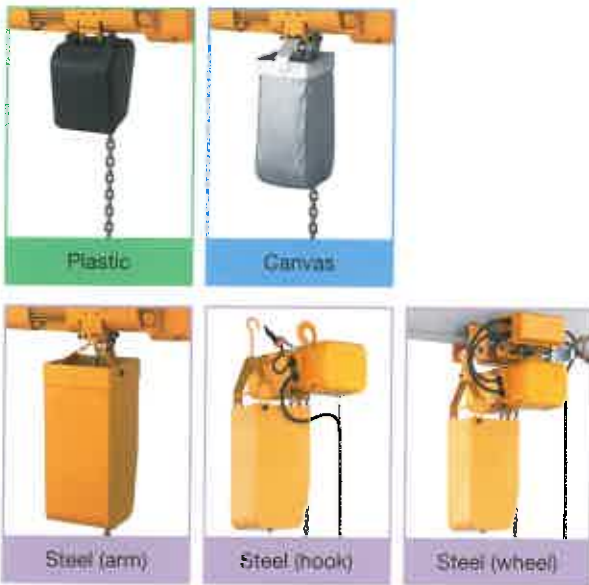
Traversing speed

Code	Traversing speed
S	single, standard
L	single, low
IS	inverter dual, standard
SD	dual, standard

Ex. for ER2M010IS-IS, the electric chain hoist bears "ER2-010IS" as a product code and the motorized trolley "MR2-010IS".

Chain Containers

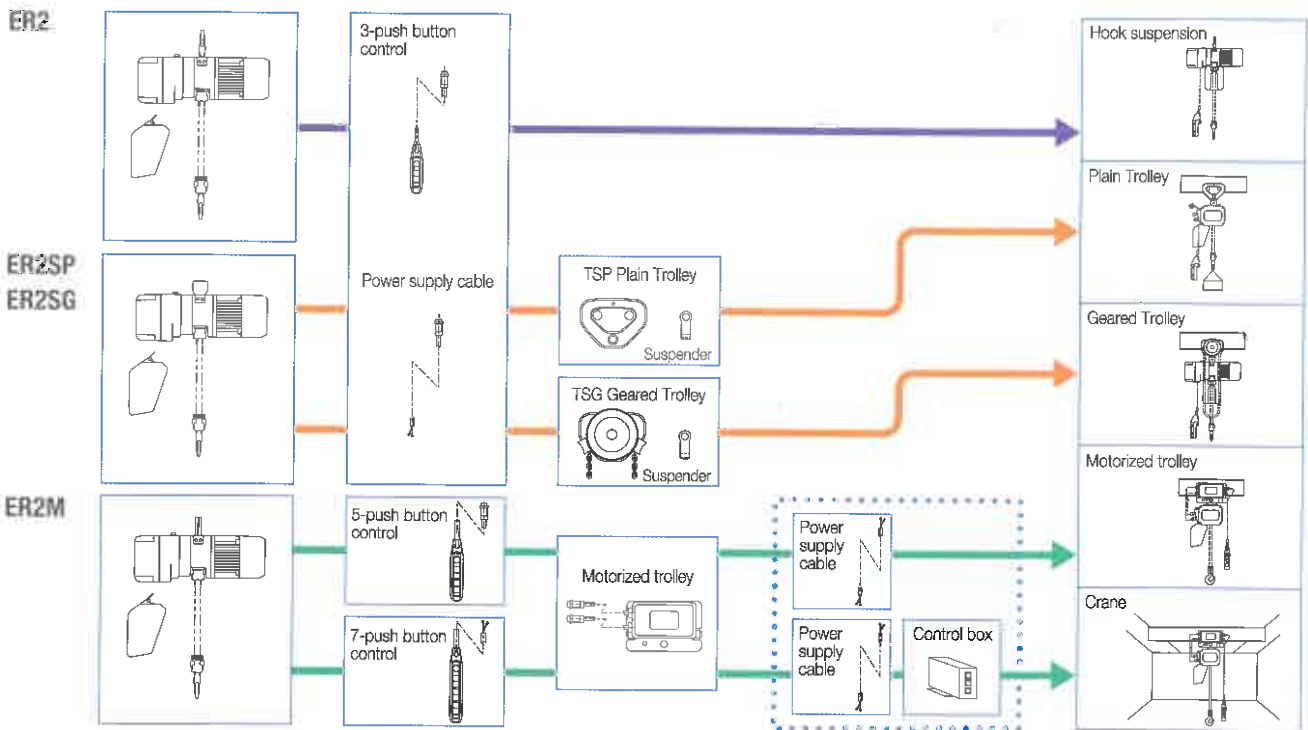
Type of containers



Product code	Body	≤4m	4.1 ≤6m	6.1 ≤8m	8.1 ≤9m	9.1 ≤12m	12.1 ≤15m	15.1 ≤18m	18.1m<
ER2-001H/IH	B								
ER2-003S/IS									
ER2-003H/IH	C								
ER2-005L/IL									
ER2-005S/IS	D								
ER2-010L/IL	E								
ER2-010S/IS									
ER2-015S/IS	F								
ER2-020L/IL									
ER2-020S/IS	E								
ER2-025S/IS									
ER2-030S/IS	F								
ER2-050S/IS									
ER2-075S	F								
ER2-100L									
ER2-100S	F								
ER2-150S									
ER2-200S	F								

Containers are installed differently depending on the types of the products or lift.
The steel containers may not cover the standard curve radii depending on their installation conditions.

Product Configurations

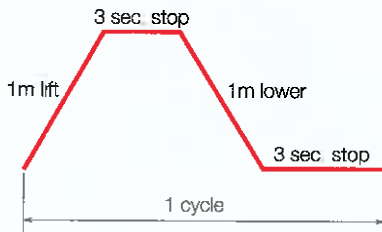


The following types of the hoist are configured differently from the above: Large capacities (7.5t or more), ER2SG/SP for crane, TWER2M and SHER2M

Lifting Motor Ratings

Short Time Rating

This rating indicates how long the hoist can be operated continuously on the below cycle, assuming continued operation for a short time span.



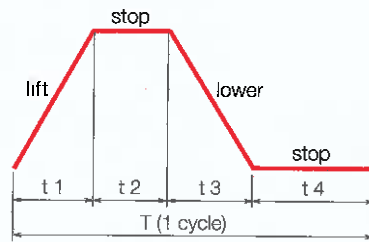
•Specified for W L L

- Single Speed: 60min
- Dual Speed: 30/10min

Intermittent Rating (Percent ED) Max. Number of Starts Per Hour

This rating indicates the ED percent (ratio of motor ON-to-OFF time) and max. number of starts per hour (how many times the motor is started up in one hour)

for a hoist operated continuously on the below cycle, assuming continued operation or repeated starting over a long time span.



•Specified for 63% of W L L

In the case of single speed:

$$\%ED = \frac{\text{Motor ON time } (t1+t3)}{1 \text{ cycle } (T)} \times 100$$

$$T = 1 \text{ cycle } (t1+t2+t3+t4)$$

(Within 10 minutes)

%ED and max. number of starts per hour

- Single Speed: 60%ED, 360 starts/hr
- Dual Speed: 40/20 %ED, 240/120 starts/hr

Hoist Classifications

ISO/JIS

State of loading		Total duration of use (h)							
		200	400	800	1600	3200	6300	12500	25000
Light	Mechanisms subjected very rarely to the maximum load and, normally, to light loads	-	-	M1	M2	M3	M4	M5	M6
Moderate	Mechanisms subjected fairly frequently to the maximum load but, normally, to rather moderate loads	-	M1	M2	M3	M4	M5	M6	-
Heavy	Mechanisms subjected frequently to the maximum load and, normally, to loads of heavy magnitude	M1	M2	M3	M4	M5	M6	-	-
Very heavy	Mechanisms subjected regularly to the maximum load	M2	M3	M4	M5	M6	-	-	-

This classification refers to ISO 4301-1 and applies to the mechanical components including gears and bearings except for consumable parts.

ASME HST

Hoist duty class	Typical areas of application	Operation time ratings at $K=0.65$			
		Uniformly distributed work periods		Infrequent work periods	
		Max. on time, min/ hr	Max. No. starts/ hr	Max. on time from cold start, min	Max. No. of starts
H2	Light machine shop fabricating, service, and maintenance; loads and utilization randomly distributed; rated loads infrequently handled	7.6 (12.5%)	75	15	100
H3	General machine shop fabricating, assembly, storage, and warehousing; loads and utilization randomly distributed	15 (25%)	150	30	200
H4	High volume handling in steel warehouses, machine shops, fabricating plants and mills, and foundries; manual or automatic cycling operations in heat treating and plating; loads at or near rated load frequently handled	30 (50%)	300	30	300

The grade symbols are identical to those of ASME HST-1M. (Performance standard for Electric Chain Hoist)

FEM Relation between ISO-and FEM-Denominations

1 D _m	1 C _m	1 B _m	1 A _m	2 m	3 m	4 m	5 m	Class of operating time	Average operating time per day (in hours)	Calculated total operating time (in hours)
M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 8			
Load spectrum	Cubic mean value	Class of operation time								
		V 0.06	V 0.02	V 0.25	V 0.5	V 1	V 2	V 3	V 4	V 5
		T 0	T 1	T 2	T 3	T 4	T 5	T 6	T 7	T 8
		Average operating time per day in hours								
		≤0.12	≤0.25	≤0.5	≤1	≤2	≤4	≤8	≤16	>16
1 L1	$K \leq 0.50$	-	-	1 D _m	1 C _m	1 B _m	1 A _m	2 m	3 m	4 m
2 L2	$0.50 < K \leq 0.63$	-	1 D _m	1 C _m	1 B _m	1 A _m	2 m	3 m	4 m	5 m
3 L3	$0.63 < K \leq 0.80$	1 D _m	1 C _m	1 B _m	1 A _m	2 m	3 m	4 m	5 m	-
4 L4	$0.80 < K \leq 1.00$	1 C _m	1 B _m	1 A _m	2 m	3 m	4 m	5 m	-	-
V0.06	T0	≤0.12	200							
V0.12	T1	≤0.25	400							
V0.25	T2	≤0.5	800							
V0.5	T3	≤1	1,600							
V1	T4	≤2	3,200							
V2	T5	≤4	6,300							
V3	T6	≤8	12,500							
V4	T7	≤16	25,000							
V5	T8	>16	50,000							

The grade symbols are identical to those of FEM 9.511. (Rules for Design of Serial Lifting Equipment: Classification of Mechanisms)