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CNAS L0916

Report No. 2022AF0412

Type -Examination Report of Special Equipment （LIFT）

Product category	Lift safety protection device
Equipment Type	Unintended Car Movement Protection（Braking subsystem）
Product name	Traction machine brake
Model/Type	EMK9K
Manufacturer	Suzhou Mona Drive Equipment Co.Ltd.
Applicant	Suzhou Mona Drive Equipment Co.Ltd.

深圳市质量安全检验检测研究院
检验检测专用章（1）
4403041984212

SHENZHEN INSTITUTE OF QUALITY & SAFETY INSPECTION AND RESEARCH

GUANGDONG STATION OF ELEVATOR QUALITY SUPERVISION AND TEST (SHENZHEN)

Notes

1.This report is obtained based in the type-examination compliance with *Regulation for Type Tests of Elevators (TSG T7007-2016,Including No.1 amending list)*

2.This report must be printed or filled out in fountain pens/sign pens with neat and clear handwriting, no alternation.

3.The report is invalid if not signed by signature, and it is also invalid without approval number of the type testing body, special seal for report and paging seal.

4. There will be two versions of the report: electronic and printed formats. They are equal in authorities.

5.Any discrepancy about the report from applicant should be raised within 15 working days after receiving the report.

6. According to the provisions of *Regulation for Type Tests of Elevators (TSG T7007-2016,Including No.1 amending list)*, the name or logo of the type test body shall be marked on the product nameplate of the main parts and safety parts of the elevator. The name of our type test organization is "Shenzhen Institute of Quality & Safety Inspection and Research", and the logo is "SIQS".

7. The report is responsible for the tested sample only.

Name of Institution: Shenzhen Institute of Quality & Safety Inspection and Research

Address of Institution：Agricultural Science and Technology Building, No. 1085, south of ChaGuang Road, XiLi street, NanShan District, Shenzhen, Guangdong Province ,China

Office Address of Type Test Body：TeJian Building,1032 HongGang Road, Luohu District, Shenzhen, Guangdong Province ,China

Approval No. TS7610038-2025

Postcode：518029

Branch Name of Type Test Body：LongHua QingHu Branch of Shenzhen Institute of Quality & Safety Inspection and Research

Branch Address of Type Test Body：50 QingCui Road, QingHu, LongHua Block, LongHua District, Shenzhen, Guangdong Province ,China

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CONTENTS

TYPE-EXAMINATION REPORT of SPECIAL EQUIPMENT (LIFT)

Equipment Name	Unintended Car Movement Protection（Braking subsystem）		
Product Name	Traction machine brake	Product Model	EMK9K
Product No.	/	Manufacture Date	/
Name of Applicant	Suzhou Mona Drive Equipment Co.Ltd.	unified social credit identifier	913205090551626724
Registered Address of Applicant	No.66 changfengdang Road,Lili Town,Wujiang District,Suzhou City		
Manufacturer	Suzhou Mona Drive Equipment Co.Ltd.		
Manufacturing Address	No.66 changfengdang Road,Lili Town,Wujiang District,Suzhou City		
Type of Examination	Consistency Verification	Inspection Date	25- May -2022
Sample No.	20220305	Sample Status	Normal
Inspection Place	LongHua QingHu Branch of Shenzhen Institute of Quality & Safety Inspection and Research		
inspection Condition	Temperature: 27℃； Humidity: 79 %RH		
Standard for Inspection	《Regulation for Type Test of Lifts》（TSG T7007-2016, Including No.1 amending list） GB 7588-2003 Safety Rules for the Construction and Installation of Electric Lifts (Including No.1 amending list) EN 81-20:2014 Safety rules for the construction and installation of lifts - Lifts for the transport of persons and goods - Part 20: Passenger and goods passenger lifts EN 81-50:2014 Safety rules for the construction and installation of lifts -Examinations and tests - Part 50: Design rules, calculations, examinations and tests of lift components		
Conclusion	Passed		
instructions	File identification number：XPSQ2022030126AENBG		

Inspected by:	Date: 27- May -2022	Agency Approval Number：TS7610038-2025
Reviewed by:	Date:27- May -2022	（Stamp）
Approved bvy:	Date: 27- May -2022	Issued Date: 27- May -2022

深圳市质量安全检验检测研究院 检验检测专用章 4403041984212 (1)

1. Sample configuration and technical data

Equipment Name		Unintended car movement protection（braking subsystem）		
Product Name		Traction machine brake	Product Model	EMK9K
application scope	No-load System Mass	928～3775 kg	Rated Load	320～1150 kg
	The expected average maximum acceleration of the car	2.50 m/s^2	Response time [1]	⩽170 ms
	The expected maximum speed before the car decelerates	1.43 m/s	Expected maximum stopping distance	780 mm
	Test speed of field inspection (m/s)	0.50 m/s	Allowable stopping distance[2] (mm)	⩽450 mm
	Drive type of Applicable lifts	Traction Type	Action part	Traction Sheave
	Type of braking element	Traction machine brake	Organization of trigger device	Electromagnet
	Trigger mode	Braking on de-energizing	Working condition	Indoor
	Balance coefficient	0.4～0.5	Mass of the car	400～1600 kg
	Test suspension ratio	2：1	/	/
The main configuration and parameters of braking system	Structure pattern	Straightly driving electromagnetic drum	Number	2
	Material of friction element	Asbestos-free friction film	Elastic Element Structure	Guided compression coil spring
	Rated Braking Torque	1950 Nm	Gearing Ratio	/
	Braking arm length	/	Diameter of Brake Wheel	Φ525 mm
	Number and Specification of elastic elements	5.3*18*43.2*6.5，4PC；3.2*9.7*43*11，4PC		
The main configuration and parameters of trigger device	Rated operating voltage of electromagnet	DC110 V	Holding voltage of electromagnet	/
	Rated power of electromagnet	180 W	Insulation class	F
	Other circuits influencing response time	No		
Self-monitoring configuration		Two switches to verify correct operation of mechanical device		

Note 1：“Response time” refers to braking subsystem, it means the time costs from outage of the trigger device to the beginning of deceleration.

2：“Allowable stopping distance ” is used to check the effectiveness of the UCMP in the lift. It is allowable maximum stopping distance the Under the field inspection speed given by applicant. The stopping distance collected from the field inspection shall not exceed this value. However, for braking subsystem, it only means stopping distance for the braking subsystem.

2. Technical documents check and results

No.	Project code	Items	Results	Conclusions
1	T5.1	Certificate and related technical documents	Completed	Passed
2	T5.2	Main structure parameter	Completed	Passed
3	T5.3	Range of applicable products Main design drawing	Completed	Passed

3. Sample check and test

3.1. Test projects and results

No.	Project code	Project contents and requirements	Results	Conclusion
1	T6.1 Braking Subsystem	The braking part shall act on: The stop parts of the arrest system shall be used in: (1) Car; (2) counterweight; (3) Wire rope system (suspension rope or compensating rope); (4) traction sheaves; (5) There are only two supported traction axles on the axle.	Ac traction _ Traction Sheave	Passed
2		If the braking subsystem requires external energy to drive, the elevator should be stopped and kept in the stopped state without energy. This requirement does not apply to guided compression springs.	Meet the requirement	Passed
		3.1 Brake subsystems shall be subjected to a braking test that simulates the expected maximum speed of the application parameters. In the test, the braking subsystem should be able to make the car stop and stay stop state. The stop test Dec be carried out on a test shaft or on a simulated test rig. The tests shall meet the following requirements: (1) The car should be located at the level layer. The car should be located in the flat position. Adjust the system quality, load capacity, car quality, counterweight, etc. to the set value that equivalent to model the weight of no-load car at the top station and full-load car at the bottom station; at least 5 times of the upward and downward braking test respectively; (2) For the brake subsystem applying for a single quality, only test the application quality; (3) For the subsystem applying for different quality, if the brake subsystem need not to be adjusted, it should test under the maximum quality conditions and the minimum quality conditions; if the brake subsystem is adjustable, there should be additional tests of in-between quality to verify the effectiveness of the adjustment formula or diagram. The in-between quality condition must be tested at least 2 times.	Suitable for 928～3775kg braking subsystem. The braking subsystem can make the car stop and maintain the state in every test.	Passed

No.	Project code	Project contents and requirements	Results	Conclusion
3		3.2 The stopping test shall be carried out to the expected maximum speed. If the expected maximum speed provided is less than 0.5 m / s; The speed at stopping test of full-load car shall be at least the rated speed and the smaller value of 0.5 m / s.	Expected maximum speed: 1.43m/s the highest speed during the test: 1.443m/s	Passed
		3.3 In the stopping test, the friction elements are allowed to return to the normal temperature before each test; normal inspection and maintenance are allowed after each test; replacing friction elements is allowed, but a set of friction elements shall be subjected to at least five tests.	Meet the requirement	Passed
		3.4 During upward stopping test, the maximum deceleration of the car shall not exceed 1gn in the stopping test. The stopping distance shall not exceed the expected maximum stopping distance. The deviation of stopping distance value of each test under the same working condition shall not exceed ± 20% of the arithmetical mean value of all test stopping distance.	Maximum Stopping distance in the tests：388mm Maximum deviation of stopping distance：8.26%	Passed
		3.5 During downward stopping test, The average deceleration of the car should not exceed 1gn. The stopping distance shall not exceed the expected maximum stopping distance of the car. The stopping distance value of each test under the same working condition shall not exceed ± 20% of the arithmetical mean value of all test stopping distance.	Maximum Stopping distance in the tests：525mm Maximum deviation of stopping distance：4.59%	Passed
		3.6 In every stopping test, the response time of the subsystems shall be measured. The measured response time shall not exceed the response time provided by the applicant.	Maximum test response time: ：163ms	Passed
		3.7 The distance must be in keeping with GB 7588§9.11.5	Not applicable	/
		3.8After the test, the braking elements shall be inspected if there is any damage, deformation and other changes (such as cracks, deformation or wear of the clamping member, friction surfaces).The braking elements shall not have fracture or deformation affecting the function after the test.	Meet the requirement	Passed

No.	Project code	Project contents and requirements	Results	Conclusion
		3.9After each test, the release (reset) operation of the braking subsystem should be checked: (1) When the system is triggered, there shall be competent persons to release it or reset the elevator; (2) When the device is released, it is not necessary to approach the car or counterweight. (3) The braking subsystem should be in working condition After release.	Meet the requirement	Passed
4	T6.1 Braking Subsystem	If using the brake in the lift driving machine as braking subsystem, operation test in 《Regulation for Type Test of Lifts》（TSG T7007-2016）attachment Y6.2.9 must be conducted, or corresponding report can certify it	Meet the requirement	Passed
5		The allowable stopping distanced provided by the applicant should be verified. The car is moved upwards under the condition of the maximum mass and the car unloading condition. When the car reaches the test speed provided by the applicant for the field inspection, the operation of the braking subsystem in the manner provided by the applicant should be triggered and the total moving distance of the car should be measured and recorded. The test shall be carried out three times, and the moving distance shall not exceed the allowable travel distance provided by the applicant unit and confirmed by the type testing organization.	Meet the requirement	Passed
6	T6.4 Nameplate	There should be nameplate of UCMP or the subsystem located at the obvious position indicating the following: (1) The name and model of the product; (2) manufacturer name and manufacturing address; (3) Name or logo of the type-test agency; (4) Allowed quality range of the device; (5) Allowed the rated load range; (6) Speed range; (7) Product number; (8) Date of manufacture.	Meet the requirement	Passed

3.2 Test Data and Chart

1）Test Data

（1）Test data of maximum quality working condition

Test parameters	Rated load(kg)	Mass of car side(kg)	Mass of counterweight side (kg)	No-load system mass (kg)	Test speed (m/s)	Traction ratio
	1150	1600	2175	3775	1.430	2:1

a) No-load car ascending

Item	Actual test speed (m/s)	Braking torque（N.m）	Stopping distance (mm)	Response time (s)
1st	1.453	1730	347	0.152
2nd	1.462	1737	369	0.154
3rd	1.515	1768	388	0.156
4th	1.443	1735	341	0.158
5th	1.449	1703	347	0.152
Average	1.464	1735	358	0.154
Maximum deviation (%)	3.46	1.93	8.26	2.33

b) Full load car downward

Item	Actual test speed (m/s)	Braking torque（N.m）	Stopping distance (mm)	Response time (s)
1st	1.485	1905	509	0.160
2nd	1.468	1886	502	0.161
3rd	1.502	1881	525	0.161
4th	1.519	1925	519	0.163
5th	1.493	1917	510	0.159
Average	1.493	1903	513	0.161
Maximum deviation (%)	1.71	1.17	2.34	1.37

（2）Test data of minimum quality working condition

Test parameters	Rated load(kg)	Mass of car side(kg)	Mass of counterweigh t side (kg)	No-load system mass (kg)	Test speed (m/s)	Traction ratio
	320	400	528	928	1.430	2:1

a) No-load car ascending

Item	Actual test speed (m/s)	Braking torque（N.m）	Stopping distance (mm)	Response time (s)
1st	1.506	1538	119	0.154
2nd	1.467	1556	112	0.153
3rd	1.466	1565	111	0.156
4th	1.489	1544	117	0.154
5th	1.471	1533	114	0.149
Average	1.480	1547	115	0.153
Maximum deviation (%)	1.77	1.15	3.84	-2.74

b) Full load car downward

Item	Actual test speed (m/s)	Braking torque（N.m）	Stopping distance (mm)	Response time (s)
1st	1.476	1506	155	0.157
2nd	1.460	1519	146	0.155
3rd	1.467	1532	148	0.154
4th	1.462	1523	145	0.154
5th	1.464	1528	147	0.158
Average	1.466	1522	148	0.156
Maximum deviation (%)	0.70	-1.03	4.59	1.54

（3）Test data for field inspection speed

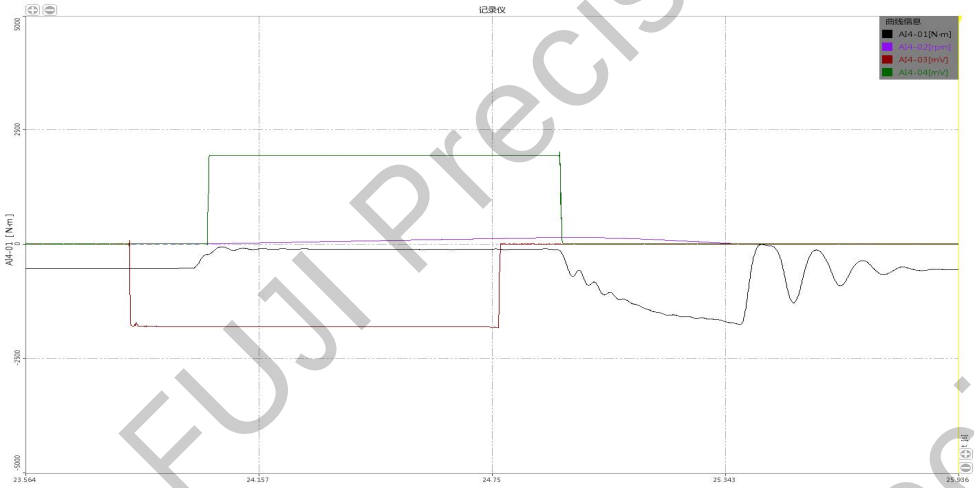
Test parameters	Rated load(kg)	Mass of car side(kg)	Mass of counterweight side (kg)	No-load system mass (kg)	Test speed (m/s)	Traction ratio
	1150	1600	2175	3775	0.500	2:1

No-load car ascending

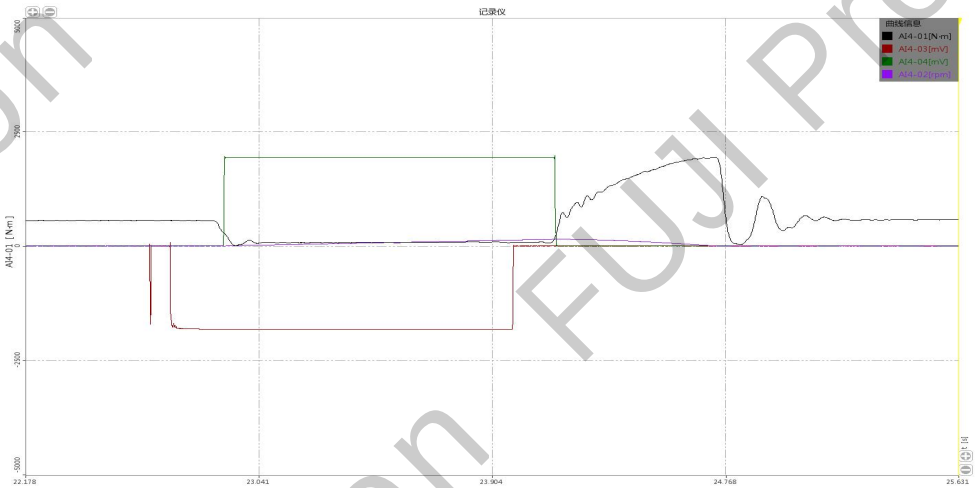
Item	1st	2nd	3rd	Average	Maximum deviation (%)
Actual test speed (m/s)	0.59	0.57	0.54	0.57	-4.06
Stopping distance (mm)	77.00	75.00	70.00	74.00	-5.41

2）Chart

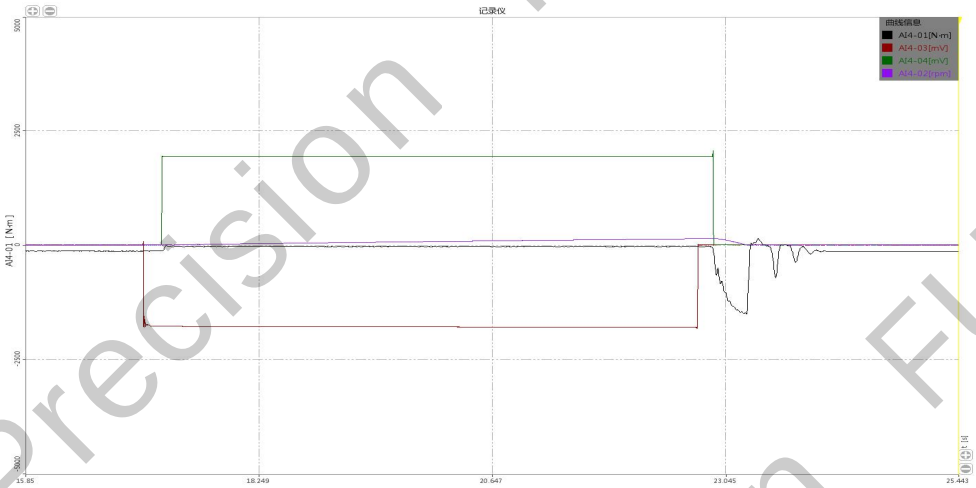
(1) No-load car ascending of maximum quality working condition



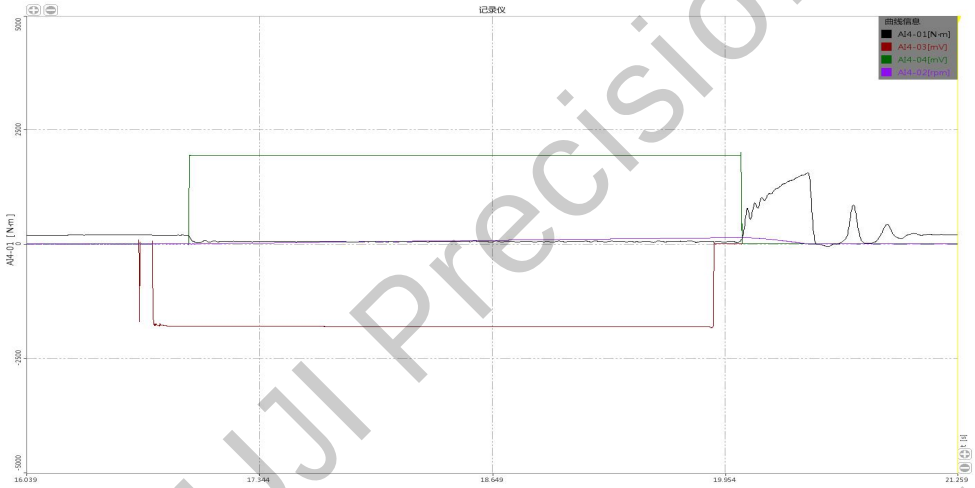
(2) Full load car downward of maximum quality working condition



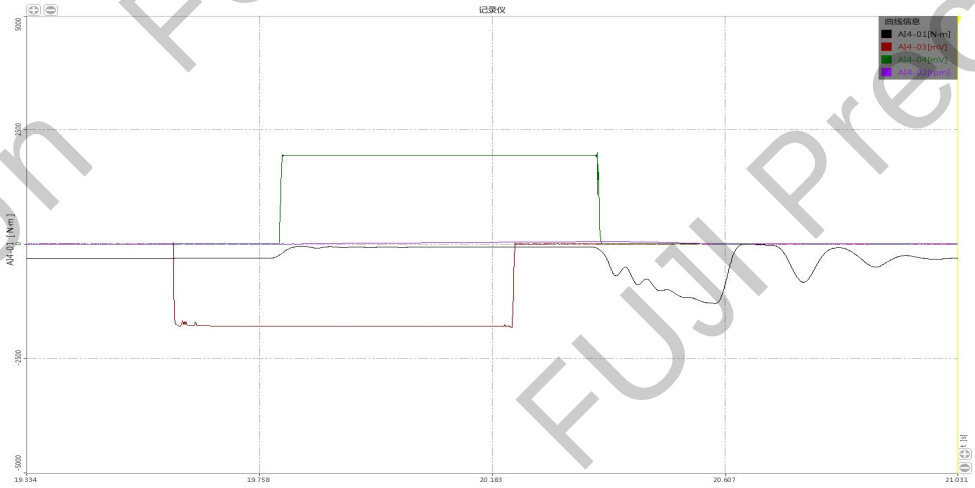
(3) No-load car ascending of minimum quality working condition



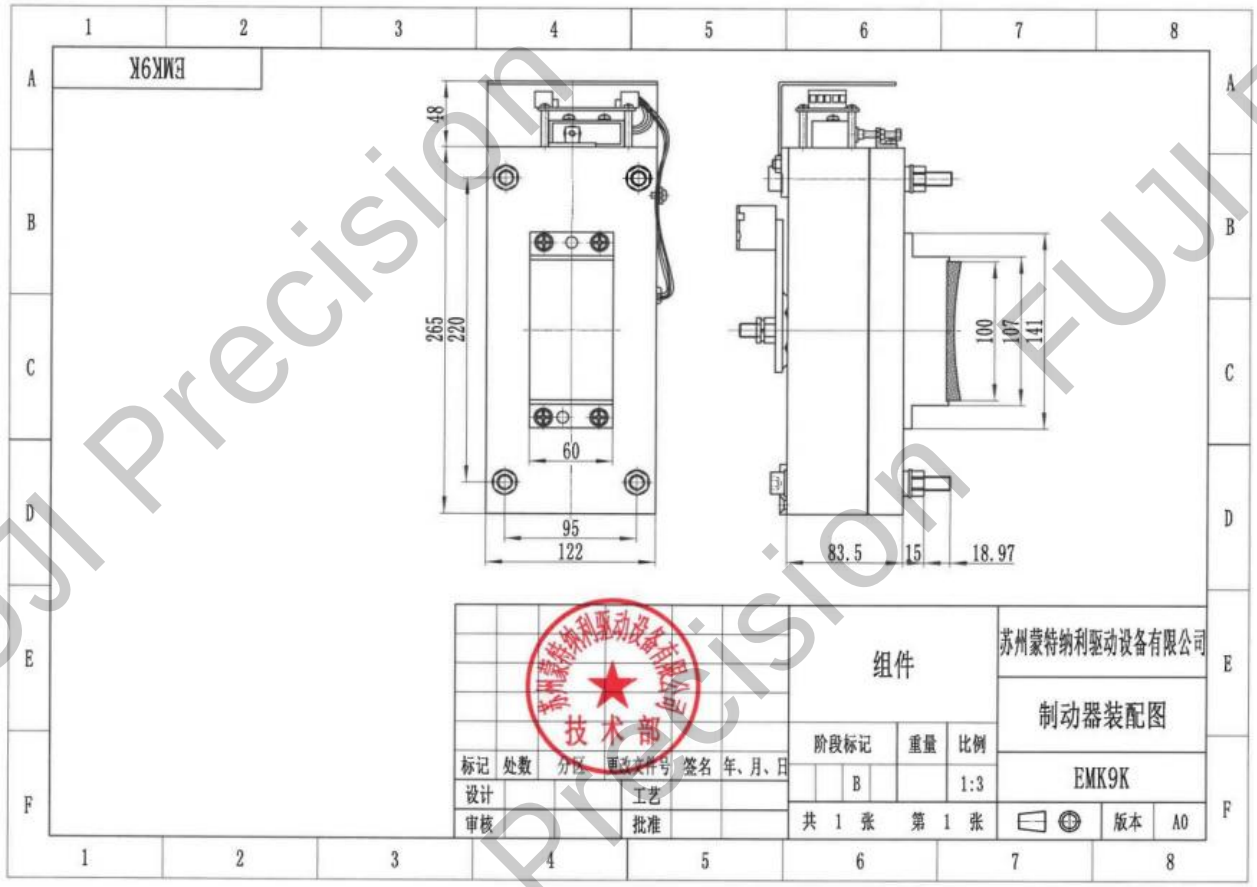
(4) Full load car downward of minimum quality working condition



(5) Field inspection speed condition



3.3 Sample drawing



3.4Sample Photo

4. Changes of The Type-Examination Report

If the name or address of the applicant (or oversea manufacturer) has any change, please submit a change request with related supporting evidence to the previous type-test agency. After confirmation, the agency will indicate the change on the change record page.

The change record see the attached page (If any).

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