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CNAS L0916

Report No. 2020AF0049

## 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 BLS

Manufacturer SHENYANG BLUELIGHT DRIVE TECHNOLOGY CO., LTD.

Applicant SHENYANG BLUELIGHT DRIVE TECHNOLOGY CO., LTD.

SHENZHEN INSTITUTE OF SPECIAL EQUIPMENT INSPECTION AND TEST  
GUANGDONG STATION OF ELEVATOR QUALITY SUPERVISION AND TEST

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## Notes

1.This report is obtained based in the type-examination compliance with *Regulation for Type Tests of Lifts (2016)(TSG T7007-2016)*

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 organization, 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. The report is responsible for the tested sample only.

Name of Type Test Organization: Shenzhen Institute of Special Equipment Inspection and Test

Inspection And Test

Address of Type Test Organization: 1032 Honggang Road, Luohu District, Shenzhen

Approval No. TS7610038-2021

Postcode: 518029

Branch Name: LongHua QingHu Branch of Shenzhen Institute of Special Equipment Inspection and Test

Branch Address: 50 QingCui Road, QingHu, LongHua Block, LongHua District, Shenzhen,Guangdong Province

Postcode: 518109

Phone: 0755 28079821 0755 28079351

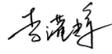
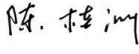
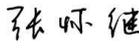
Website : [www.sise.org.cn](http://www.sise.org.cn) Email: [szlift@sise.org.cn](mailto:szlift@sise.org.cn)

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**TTYPE-EXAMINATION REPORT of  
SPECIAL EQUIPMENT  
(LIFT)**

TS7610038-2021

Equipment Name	Unintended Car Movement Protection (Braking subsystem)		
Product Name	Traction machine brake	Product Model	BLS
Product No.	/	Manufacture Date	/
Name of Applicant	SHENYANG BLUELIGHT DRIVE TECHNOLOGY CO., LTD.	unified social credit identifier	91210112715754447D
Registered Address of Applicant	NO.37, XINSHIJI ROAD, HUNNAN NEW DISTRICT,		
Manufacturer	SHENYANG BLUELIGHT DRIVE TECHNOLOGY CO., LTD.		
Manufacturing Address	NO.37, XINSHIJI ROAD, HUNNAN NEW DISTRICT,		
Type of Examination	Initial Type-Examination	Inspection Date	13- Jan -2019
Sample No.	20191227	Sample Status	Normal
Inspection Place	LongHua QingHu Branch of Shenzhen Institute of Special Equipment Inspection and Test		
inspection Condition	Temperature: 27°C; Humidity: 79 %RH		
Standard for Inspection	<p>《Regulation for Type Test of Lifts》 (TSG T7007-2016)</p> <p>GB 7588—2003 Safety Rules for the Construction and Installation of Electric Lifts (Including No.1 amending list)</p> <p>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</p> <p>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</p>		
Conclusion	<p>With the type-test, it is confirmed that the product is compliance with the regulations of Regulation for Type Test of Lifts (TSG T7007-2016).</p> <p>The sample is in compliance with related regulations of GB 7588-2003 Safety Rules for the Construction and Installation of Electric Lifts (Including No.1 amending list)and EN 81-20:2014 as well as EN 81-50:2014.</p>		
instructions	File identification number: XPSQ2019120057AENBG		
Inspected by: 	Date: 14- Jan -2019	Agency Approval Number: TS7610038-2021  (Stamp)  Issued Date: 14- Jan -2019	
Reviewed by: 	Date: 14- Jan -2019		
Approved by: 	Date: 14- Jan -2019		

**1. Sample configuration and technical data**

Equipment Name		Unintended car movement protection (braking subsystem)		
Product Name		Traction machine brake	Product Model	BLS
applicati on scope	No-load System Mass	900~4800 kg	Rated Load	320~1275 kg
	The expected average maximum acceleration of the car	2.50 m/s <sup>2</sup>	Response time <sup>1</sup>	≤200ms
	The expected maximum speed before the car	1.6034 m/s	Expected maximum stopping distance	530 mm
	Test speed of field inspection (m/s)	0.30 m/s	Allowable stopping distance <sup>2</sup> (mm)	≤397 mm
	Drive type of Applicable lifts	Traction Type	Action part	Traction Sheave Shaft
	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	386~2081kg
	Test suspension ratio	2: 1	/	/
The main configuration and parameters of braking system	Structure pattern	Complete electromagnetic disc	Number	2
	Material of friction element	Asbestos-free friction film	Elastic Element Structure	Guided compression coil spring
	Rated Braking Torque	1575 N.m	Gearing Ratio	/
	Braking arm length	/	Diameter of Brake Wheel	Φ278mm
	Number and Specification of elastic	3.0*10 *42.5 20		
The main configuration and parameters of trigger device	Rated operating voltage of	DC110 V	Holding voltage of electromagnet	/
	Rated power of electromagnet	322 W	Insulation class	F
	Other circuits influencing response	No		
Self-monitoring configuration	Two switches to verify correct operation of mechanical device			
<p>Note 1: "Response time" refers to braking subsystem, it means the time costs from outage of the trigger device to the beginning of deceleration.</p> <p>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.</p>				

## 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 _ <u>Traction Sheave</u> <u>Shaft</u>	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 may 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 <u>900~4800kg</u> braking subsystem. The braking subsystem can make the car stop and maintain the state in every test.	Passed

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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: 1.6034m/s the highest speed during the test: 1.608m/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 $\pm 20\%$ of the arithmetical mean value of all test stopping distance.	Maximum Stopping distance in the tests: 432mm Maximum deviation of stopping distance: 5.11%	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 $\pm 20\%$ of the arithmetical mean value of all test stopping distance.	Maximum Stopping distance in the tests: 524mm Maximum deviation of stopping distance: 4.25%	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: : 161ms	Passed
		3.7 The distance must be in keeping with GB 7588§9.11.5	Not applicable	/
		3.8 After 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

**TTYPE-EXAMINATION REPORT of  
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No.	Project code	Project contents and requirements	Results	Conclusion
		<p>3.9 After 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;</p> <p>(2) When the device is released, it is not necessary to approach the car or counterweight.</p> <p>(3) The braking subsystem should be in working condition After release.</p>	Meet the requirement	Passed
4		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	T6.1 Braking Subsystem	The allowable stopping distance 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	<p>There should be nameplate of UCMP or the subsystem located at the obvious position indicating the following:</p> <p>(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.</p>	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
	1275	2081	2719	4800	1.603	2:1

a) No-load car ascending

Item	Actual test speed (m/s)	Braking torque (N.m)	Stopping distance (mm)	Response time (ms)
1 <sup>st</sup>	1.646	1465	432	0.153
2 <sup>nd</sup>	1.612	1468	403	0.151
3 <sup>rd</sup>	1.615	1479	406	0.157
4 <sup>th</sup>	1.663	1504	418	0.161
5 <sup>th</sup>	1.609	1518	396	0.159
Average	1.629	1487	411	0.156
Maximum deviation (%)	2.09	2.10	5.11	-3.33

b) Full load car downward

Item	Actual test speed (m/s)	Braking torque (N.m)	Stopping distance (mm)	Response time (ms)
1 <sup>st</sup>	1.658	1498	524	0.155
2 <sup>nd</sup>	1.608	1489	499	0.149
3 <sup>rd</sup>	1.615	1497	506	0.149
4 <sup>th</sup>	1.617	1498	508	0.147
5 <sup>th</sup>	1.633	1484	516	0.151
Average	1.626	1493	511	0.150
Maximum deviation (%)	1.96	-0.62	2.62	3.20

(2) Test data of minimum quality working condition

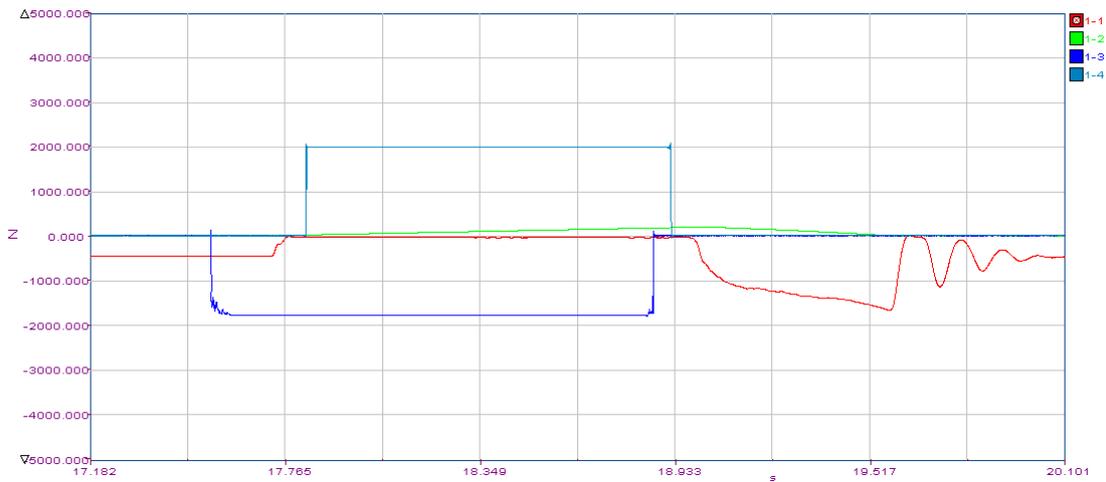
Test parameters	Rated load(kg)	Mass of car side(kg)	Mass of counterweight side (kg)	No-load system mass (kg)	Test speed (m/s)	Traction ratio
	320	386	514	900	1.603	2:1
a ) No-load car ascending						
Item	Actual test speed (m/s)	Braking torque (N.m)	Stopping distance (mm)	Response time (ms)		
1 <sup>st</sup>	1.657	1410	212	0.117		
2 <sup>nd</sup>	1.651	1407	209	0.106		
3 <sup>rd</sup>	1.631	1422	203	0.105		
4 <sup>th</sup>	1.636	1392	212	0.113		
5 <sup>th</sup>	1.629	1418	200	0.112		
Average	1.641	1410	207	0.111		
Maximum deviation (%)	0.99	-1.26	-3.47	5.79		
b) Full load car downward						
Item	Actual test speed (m/s)	Braking torque (N.m)	Stopping distance (mm)	Response time (ms)		
1 <sup>st</sup>	1.628	1433	243	0.132		
2 <sup>nd</sup>	1.629	1426	250	0.125		
3 <sup>rd</sup>	1.611	1438	234	0.129		
4 <sup>th</sup>	1.614	1428	241	0.126		
5 <sup>th</sup>	1.609	1430	231	0.130		
Average	1.618	1431	240	0.128		
Maximum deviation (%)	0.67	0.49	4.25	2.80		

(3) Test data for field inspection speed

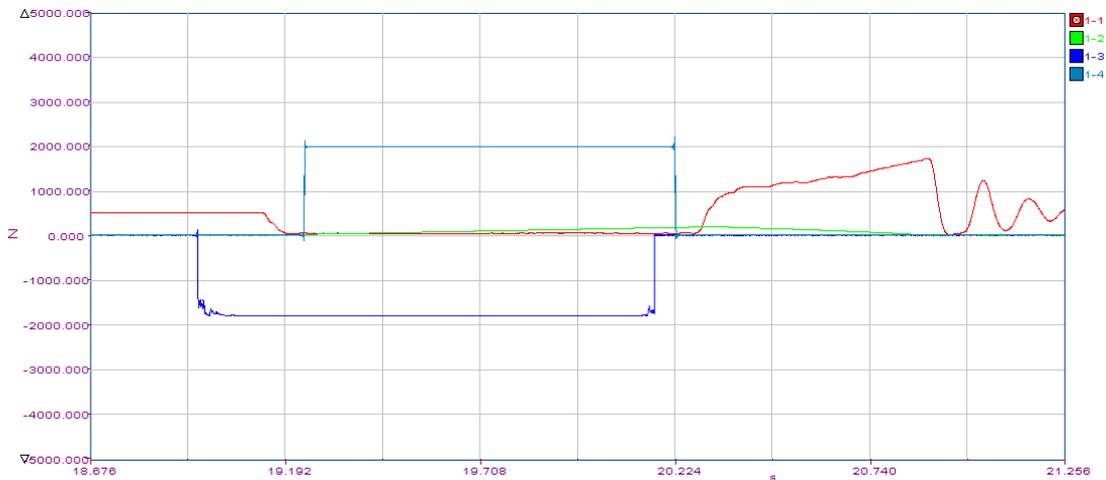
Test parameters	Rated load(kg)	Mass of car side(kg)	Mass of counterweight side (kg)	No-load system mass (kg)	Test speed (m/s)	Traction ratio
	1275	2081	2719	4800	0.300	2:1
No-load car ascending						
Item	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	Average	Maximum deviation (%)	
Actual test speed (m/s)	0.56	0.60	0.60	0.58	-4.05	
Stopping distance (mm)	85.00	93.00	95.00	91.00	-6.59	

2) Chart

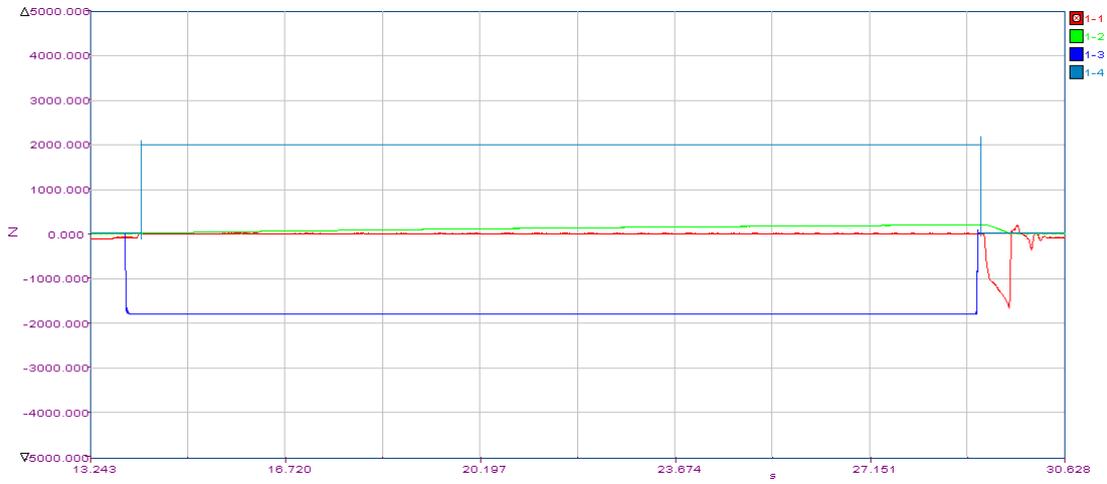
(1) No-load car ascending of maximum quality working condition



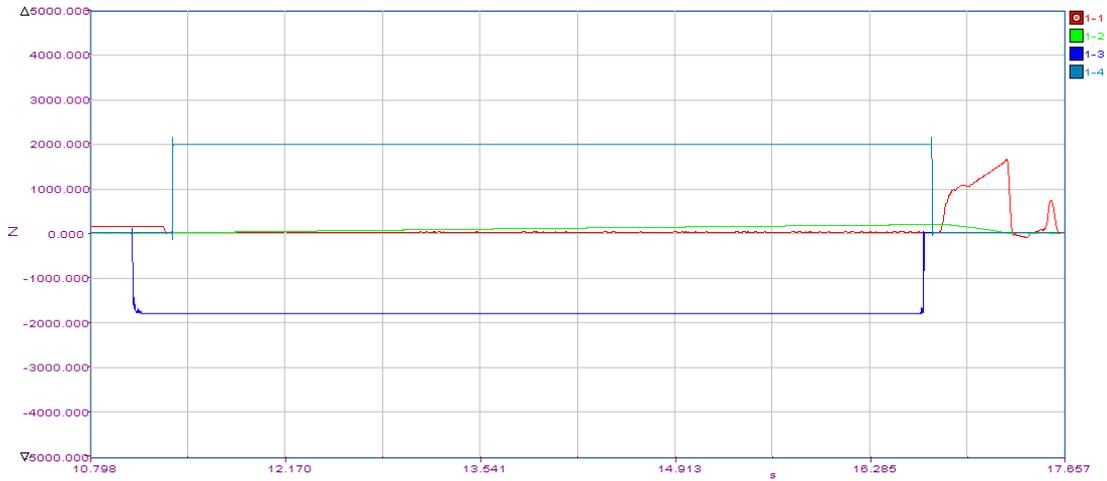
(2) Full load car downward of maximum quality working condition



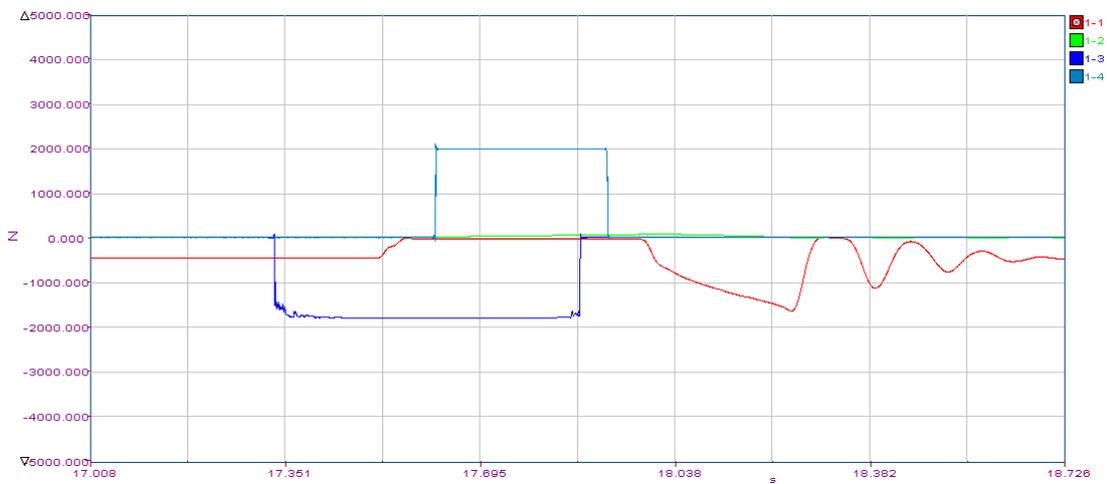
(3) No-load car ascending of minimum quality working condition



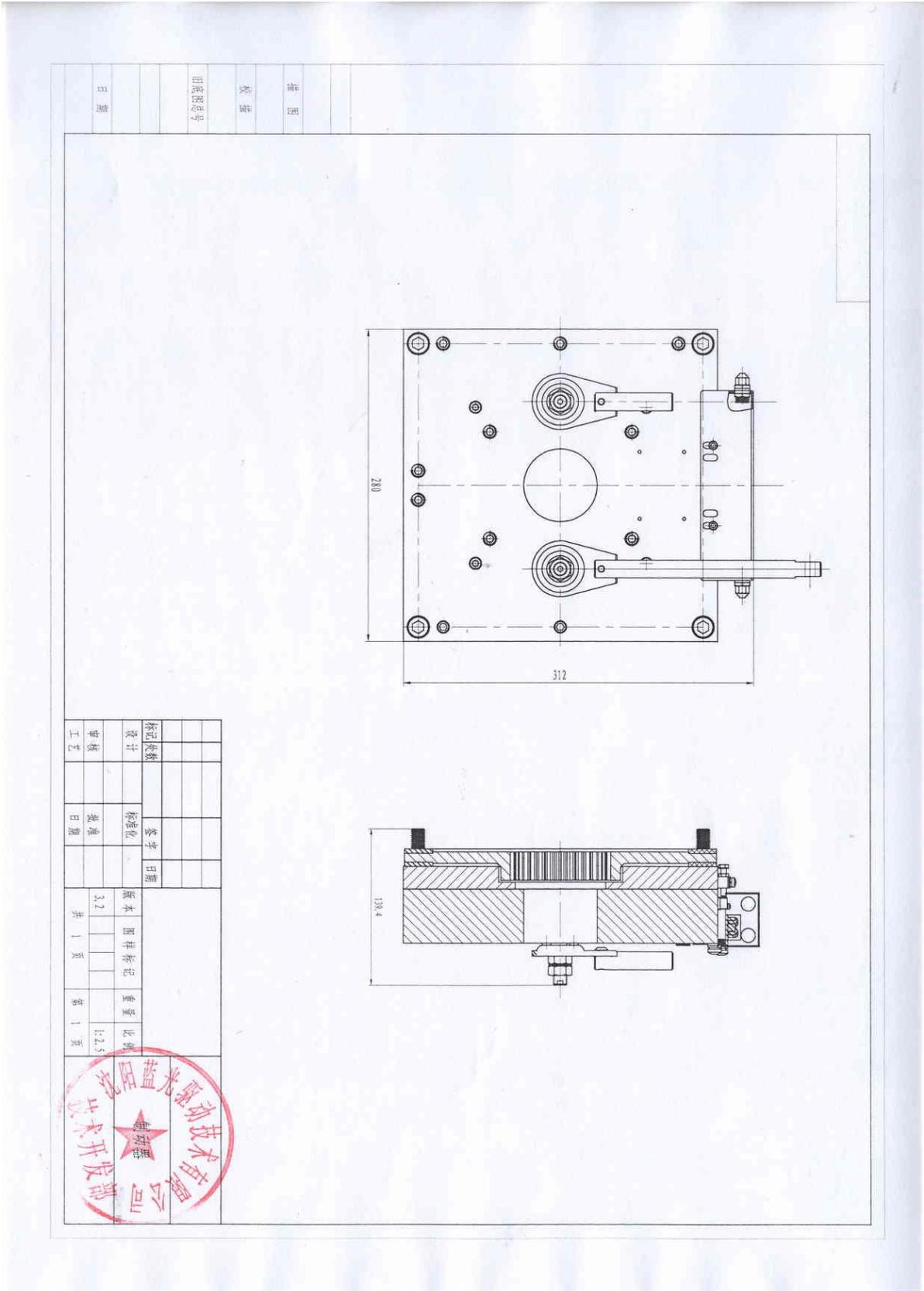
(4) Full load car downward of minimum quality working condition



(5) Field inspection speed condition



3.3 Sample drawing



日期	
图号	
比例	
材料	
重量	
图例	

设计	审核	工艺	批准	日期	签字	日期	版本	图样标记	重量	比例
							3.2	共 1 页	第 1 页	1:2.5



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3.4 Sample 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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