Report No. 2022AF0990

TYPE-EXAMINATION REPORT OF SPECIAL EQUIPMENT (LIFT)

Product category: Main lift component

Equipment Type: Driving machine

Product name: Lift traction machine

Model/Type: MCK200

Manufacturer: Suzhou Mona Drive Equipment Co.Ltd

Applicant: Suzhou Mona Drive Equipment Co.Ltd

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 T7007-2022)*

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. 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)

Product category	Main lift component	Equipment Name	Driving machine
Product Name	Lift traction machine	Product Model	MCK200
Main Technical Data	Rated speed of driving machine	5.00 m/s	
	Motor rated power	19.50 kW	
Product No.	YF20210007	Manufacture Date	2021
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,215200 P.R.China		
Manufacturer	Suzhou Mona Drive Equipment Co.Ltd	Unified Social Credit Identifier	913205090551626724
Registered Address of Manufacturer	No.66 Changfengdang Road,Lili Town,Wujiang District,Suzhou city,215200 P.R.China		
Manufacturing Address	No.66 Changfengdang Road,Lili Town,Wujiang District,Suzhou city,215200 P.R.China		
Type of Examination	Consistency Verification	Inspection Date	-2021、-Aug-2022
Sample No.	20211177	Sample Status	Normal
Inspection Place	LongHua QingHu Branch of Shenzhen Institute of Quality & Safety Inspection and Research		
Inspection Condition	Temperature:20 ℃； Humidity:44 %RH； Voltage:380 V		
Standard for Inspection	*Regulation for Type Tests of Elevators (TSG T7007-2022)* *GB/T 7588.1-2020 Safety rules for the construction and installation of lifts—Part1:Passenger and goods passenger lifts* *GB/T 7588.2-2020 Safety rules for the construction and installation of lifts—Part2: Design rules, calculations, examinations and tests of lift components* EN 81-20:2020 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 81-50:2020 Safety rules for the construction and installation of lifts -Examinations and tests - Part 50: Design rules, calculations, examinations and tests of lift components		
Conclusion	Pass		
Notes	1.File identification number：XPSQ2022070049AENZS 2. This report is issued according to the requirements of " *Regulation for Type Tests of Elevators* " (TSG T7007-2022), combined with the original Type-Examination report (report No.2021AF1312, document identification No. XPSQ2021090063BENBG), through technical documents check.		

Inspected by	Date: 26-Sep-2022	Agency Approval Number：TS7610038-2025
Reviewed by	Date: 26-Sep-2022	(stamp)
Approved by	Date: 26-Sep-2022	Issued Date:26-Sep-2022

1. Sample configuration and technical data

Product name		Lift traction machine	Model/Type	MCK200
Product No.		YF20210007	Manufacture Date	2021
Working condition		Indoor	Construction pattern	Horizontal, No reduction device, Cantilever traction sheave, Output shaft supported by two point
Rated speed of driving machine (linear velocity of Traction sheave)		5.00 m/s	Rated output torsion	780 N·m
Traction rate		2:1	Height of the center (without speed reducer)	285 mm
Allowable radial load of the traction sheave shaft (without speed reducer)		4000 kg	Hand winding device	Release Wrench
Motor	Type code	MCK200	Construction pattern	3 phase AC permanent magnet synchronous Outer rotor
	Rated power	19.50 kW	Rated rotate speed	239 r/min
	Rated voltage	AC380 V	Rated current	40.00 A
	Rated frequency	63.7 Hz	Insulation grade	F
	Duty cycle	S5-40%	Shell protection grade	IP41
	Overload protection device	Frequency converter	Frequency of starter	240 F/h
	Explosive-proof type	Not applicable	Explosive-proof grade	Not applicable
	Name of manufacturer	Suzhou Mona Drive Equipment Co.Ltd		
Reduction device	Structure pattern	Not applicable	Reduction radio	Not applicable
	Reduce level	Not applicable	Width between centers	Not applicable
	Crossed axis angle	Not applicable	Lubricating oil specification	Not applicable
	Material grade of contacting surface on transmission pair			Not applicable
Driving sheave	Number of suspensions device used	6	Groove shape	U shape with cut
	Nominal diameter of suspension device (rope)	10 mm	Heat treatment for groove surface	/
	Sheave pitch diameter	400 mm	Winding method	Single winding
Brake	Type code	EMK9K	Effect position	Traction sheave
	Quantity and construction pattern	Straightly driving electromagnetic drum (Two dividedly installed)	Insulation grade	F
	Rated working voltage for electromagnet	DC110 V	Brake drum diameter	525 mm
	Hydraulic release device rated working pressure	Not applicable	Electromagnet rated maintenance voltage/current	DC110 V/2*1.3 A
	Explosive-proof type	Not applicable	Explosive-proof grade	Not applicable
Driving system	Speed control method	VVVF control	Speed control device	Frequency converter
	Speed feedback device	Rotary encoder		

2. Technical documents check and results

No.	Project code	Items	Results	Conclusion
1	X5.1	Certificate and related technical data	Information Complete	Pass
2	X5.2	Calculation data	Information Complete	Pass
3	X5.3	Main design drawing	Information Complete	Pass

3. Sample check and test

3.1. Test projects and results

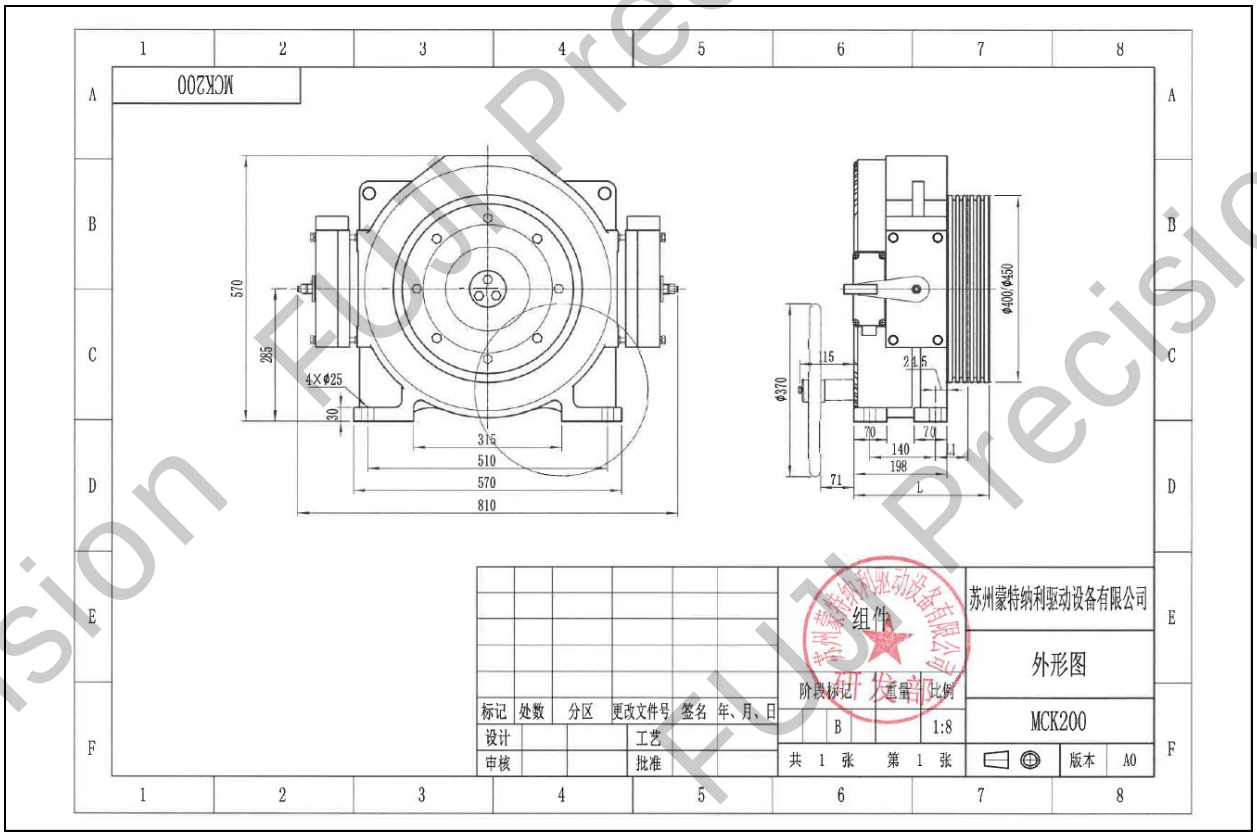
No.	Project code and name	Project contents and requirements	Results	Conclusion
1	X6.1.1 Insulation resistor of stator winding	When the insulation resistance of the stator winding is in heat condition or the temperature rise test is finished, it shall not be less than 0.5 MΩ; the cold-state insulation resistance is not less than 5 MΩ.	Meet the requirements	Pass
2	X6.1.2 Pressure resisting test	The three-phase leading-out terminal and machine shall earth are applied with double power voltage and 1000 V test voltage; the temperature sensor and the machine shell earth, the three-phase leading-out terminal of the elevator driving host are applied with 500 V test voltage; the test lasting time is 60s, the leakage current is not more than 100mA.	leakage current: ≤10.10 mA	Pass
3	X6.2.1 Brake system type	The brake system shall be provided with an electromechanical brake (frictional type) and keep release state under the continuously charging state. The braked part shall be rigidly connected with the traction wheel, the winding cylinder or the chain wheel in machine manner.	Meet the requirements	Pass
4		The band type brake cannot be applied in driving machine.	Meet the requirements	Pass
5	X6.2.2 Packet set of brake system	For driving machine, all mechanical parts of the brake (including electromagnet moving iron core) which are involved in applying braking force to the brake wheel (disc) shall be assembled in at least two parts. For electromechanical brakes used in passenger elevators and freight elevators, electromagnet coils, static iron cores and parts guiding the moving iron cores shall also be assembled in at least two parts. In the normal operation of the elevator, two sets of brakes should not lose their braking function at the same time due to the brake grouping structure problem	Meet the requirements	Pass
6	X6.2.3 Brake pressure of brake system	Pressure of brake gate tile or cushion shall be applied by a directive compression spring or a heavy weigh. In the vicinity of the brake, there should be warning information (such as inspection method, replacement conditions, etc.) on the replacement of brake liner wear.	Meet the requirements	Pass

No.	Project code and name	Project contents and requirements	Results	Conclusion
7	X6.2.4 Braking torque of driving machine	The rated moment of the elevator driving host shall be negotiated with the elevator driving host user according to GB 7588-2003 §12.4.2.1, or is 2.5 times of the rated torque.	Meet the requirements	Pass
8		Proper lifting (or release) of the brake should be monitored or its braking force verified. If one of the brake sets is not working due to failure of a component a sufficient braking effort to decelerate, stop and hold the car, travelling downwards at rated speed and with rated load in the car and upward with empty car shall continue to be exercised.	Meet the requirements	Pass
9	X6.2.5 Start and release voltage of electromagnet brake	Under the condition of satisfying 3.2.4, the lowest suction voltage of the brake electromagnet should not exceed 80% of the rated voltage.	68.00 V	Pass
		Under the condition of satisfying 3.2.4,the highest release voltage of the brake electromagnet should not exceed 40% of the rated voltage.	39.00 V	Pass
		Under the condition of satisfying 3.2.4, the lowest release voltage should not less than 10% of rated voltage.	38.00 V	Pass
10	X6.2.6 Brake responding time	The brake responding time of the brake (From the power-off time to the time that rated brake torque is reached or braking position is reached)shall not be more than 0.5s. For the elevator driving machine which also perform the function of the brake element of over-speed protection on the carriage, the responding time shall satisfy the design value of the manufacture at the same time.	0.19 s	Pass
11	X6.2.7 Pressure resisting test of brake coil	For the coil voltage resisting test of the brake, the conductive part applies 1000 V to the ground for 1 min without puncturing phenomenon.	Meet the requirements	Pass
12	X6.2.8 Use of belt	By using a belt, one or multiple electric motor is connected to the spare part acted by electromechanical brake. There are at least two belts.	Not applicable	/
13	X6.2.9 Action test of the brake	The brake shall perform the action test for more than 2 millions time, the testing process shall be free from any maintenance; and the brake is not allowed to fail during the test after finishing the test, the X6.2.4-X6.2.6 shall still satisfy the requirement.	Meet the requirements	Pass
14	X6.2.10 brake noise test	The brake noise should be detected independently, the measurement surface average value LPA of the A weight noise sound level shall not exceed the following table:	47.00 dB(A)	Pass
		Rated torque N·m: ≤700 / >700 ≤1500 / >1500 — Noise dB(A) LPA: 70 / 75 / 80		
		For the elevator drive host of which rated torque is more than 3000N·m, the noise shall not be more than the threshold given by the manufacturer of the elevator driving host; if the enterprise not gives the threshold index, it can be judged by 80dB(A)		

No.	Project code and name	Project contents and requirements	Results	Conclusion
15	X6.2.11 brake released by hand	When the emergency operation of vertical elevator occurs, it shall be able to open all brakes of driving machine by continuous manual operation; Manual release brake failure shall not result in failure of braking function. It shall be possible to test each brake set independently from outside of the well.	Meet the requirements	Pass
16		Mechanical parts used for manual mechanical (such as lever) brake release, should have measures to prevent its abnormal shift or jammed, in the normal operation of the elevator should not be due to its abnormal shift or jammed lead to two sets of brakes at the same time accidental release.	Meet the requirements	Pass
17	X6.3.1 Normal direction jumping of rope groove face of traction wheel	For the Lift traction machine ,the normal direction jumping of the groove face of the traction wheel rope groove is 1/2000 of the pitch diameter of the traction wheel	0.05 mm	Pass
18	X6.3.2 Difference of pitch diameters of every rope groove of the traction wheel	The difference between the pitch diameters of every two grooves of the traction wheel rope grooves shall not be more than 0.10 mm.	0.03 mm	Pass
19	X6.3.3 Hardness of rope groove of traction wheel	The groove face of the traction wheel shall uniform, the hardness difference is not more than 15 HBW.	4.00 HBW	Pass
20	X6.4 Reducer box	The box cutting face and the eye cover of the gear elevator driving host shall be tightly connected without oil leakage. During the temperature rise test, the oil leakage of the extending end of the reduction box shaft shall not exceed 25cm^2	Not applicable	/
21	X6.5.1 Temperature rise test	Under the condition of specified working system, the load lasting rate, the starting (brake) time, when the electric motor coil in the driving machine (if no reducer box)or the oil in the reducer box achieve thermal stability, the following requirements shall be satisfied: (1) The temperature rise of the electric motor stator winding and the brake coil shall not exceed 80 K or 105 K respectively in the process of adopting B grade or F grade insulation	Motor stator winding: F,78.82 K Brake coil: F,59.01 K	Pass
22		(2)The oil temperature of the reduction box shall not exceed 85℃	Not applicable	/
23		(3) The elevator driving machine can normally run after the temperature rise test	Meet the requirements	Pass

<table>
<tr><th>No.</th><th>Project code and name</th><th>Project contents and requirements</th><th>Results</th><th>Conclusion</th></tr>
<tr><td>24</td><td>X6.5.2
Driving host noise</td><td>When the elevator driving host on the test platform operates at no load under the rated power supply frequency, the measurement surface average value LPA of the A weight noise sound level shall not exceed the following provisions:
<table>
<tr><th colspan="2">Project
Rated speed m/s</th><th>≤2.5</th><th>＞2.5 ≤4</th><th>＞4 ≤8</th></tr>
<tr><td rowspan="2">Noise dB(A) LPA</td><td>Gear-free drive host</td><td>62</td><td>65</td><td>68</td></tr>
<tr><td>Gear drive host</td><td>70</td><td>80</td><td>-</td></tr>
</table>
For the elevator drive host of which rated speed is more than 8 m/s, the noise shall not be more than the threshold given by the manufacturer of the elevator driving host; when the enterprise not gives the threshold index, the threshold index of the 8 m/s elevator driving host is judged.</td><td>52.60 dB(A)</td><td>Pass</td></tr>
<tr><td>25</td><td rowspan="3">X6.5.3
Idle vibration speed of elevator driving host</td><td>The vibration of the traction type elevator driving host shall satisfy the following requirements:
(1)When the gear-free elevator driving host is in idle operation by the rated power supply frequency, the maximum value of the vibration speed effective value of the detecting part shall be not more than 0.5 mm/s</td><td>0.12 mm/s</td><td>Pass</td></tr>
<tr><td>26</td><td>(2) The maximum value of the torque vibrating speed effective value at the traction wheel of the gear elevator driving host shall not be more than 4.5 mm/s</td><td>Not applicable</td><td>/</td></tr>
<tr><td>27</td><td>(3) For the elevator driving host whose rated speed is over 8m/s，the vibration speed cannot exceed the limit given by the manufacturer; if there is not a given limit, the judgment criteria follows 8m/s elevator driving host.</td><td>Not applicable</td><td>/</td></tr>
<tr><td>28</td><td>X6.5.4
Speed</td><td>For the elevator driving host, when it is running without load at rated voltage and frequency, the linear velocity of the driving wheel must be in the range from 92% of rated speed to 105% rated speed at rated voltage and frequency.</td><td>5.02 m/s,
100.40 %</td><td>Pass</td></tr>
<tr><td>29</td><td rowspan="2">X6.5.5
Appearance</td><td>The oil level in the reducer box should be observed easily.</td><td>Not applicable</td><td>/</td></tr>
<tr><td>30</td><td>Hand winding crank shall be partly or completely yellow. The manual lock loosing spanner of the elevator driving host brake shall be red.</td><td>Meet the requirements</td><td>Pass</td></tr>
<tr><td>31</td><td>X6.5.6
Nameplate of elevator driving host</td><td>The product nameplate shall be located at the obvious position, the nameplate should be permanent and should at least notify the following contents:
(1) Product name, model; (2) manufacturer name and manufacturing address; (3) Type-examination certificate No.; (4) rated speed (or elevator rated speed); (5) rated power; (6) rated voltage; (7) rated current; (8) rated frequency; (9) rated output torque (or rated load weight); (10) protection grade; (11) product No. (12)manufacturing date</td><td>Meet the requirements</td><td>Pass</td></tr>
</table>

3.2 Sample Drawing



3.3 Additional Information

No.

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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