SISE 深圳市特种设备安全检验研究院 SHENZHEN INSTITUTE OF SPECIAL EQUIPMENT INSPECTION AND TEST

CMA 2015190143Z 有效期至2021年8月24日

(2015)(粤)质监认字134号 有效期至2018年8月23日

ilac-MRA CNAS 中国认可 国际互认 检测 TESTING CNAS L0916

Report No.2017AF0875

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# TYPE-EXAMINATION REPORT OF SPECIAL EQUIPMENT （LIFT）

Product category Main lift component

Equipment Type Driving machine

Product name Lift traction machine

Model/Type WYT-V

Manufacturer Shenyang Bluelight Drive Technology Co.,Ltd.

Applicant Shenyang Bluelight Drive Technology Co.,Ltd.

深圳市特种设备安全检验研究院 检验检测专用章 (电子)

**SHENZHEN INSTITUTE OF SPECIAL EQUIPMENT INSPECTION AND TEST**

**GUANGDONG STATION OF ELEVATOR QUALITY SUPERUISION AND TEST (SHENZHEN)**

# Notes

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

2. The report must be printed or filled out in fountain pens/sign pens with neat and clear handWYT-Viting, 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.

**THE INFORMATION OF TYPE TEST ORGANIZATION :**

Name: Shenzhen Institute of Special Equipment Inspection and Test

Address：1032 Honggang Road, Luohu District, Shenzhen,Guangdong Province

Approval No. TS7610038-2021

Postcode：518029

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# TYPE-EXAMINATION REPORT of SPECIAL EQUIPMENT (LIFT)



| | | | |
|---|---|---|---|
| Equipment Name | Driving machine | | |
| Product Name | Lift traction machine | Product Model | WYT-V |
| Main Technical Data | Rated speed of driving machine | 2.50 m/s | |
| | Motor rated power | 20.30 kW | |
| Product No. | / | Manufacture Date | / |
| Name of Applicant | Shenyang Bluelight Drive Technology Co.,Ltd. | Unified Social Credit Identifier | 91210112715754447D |
| Registered Address of Applicant | No.37 Shiji Road,Hunnan New Distrct,Shenyang,China | | |
| Manufacturer | Shenyang Bluelight Drive Technology Co.,Ltd. | | |
| Manufacturing Address | No.37 Shiji Road,Hunnan New Distrct,Shenyang,China | | |
| Type of Examination | Initial Type-Examination | Inspection Date | 9-Aug-2017 |
| Sample No. | 20170877 | Sample Status | Normal |
| Inspection Place | Qinghu branch, Shenzhen Institute of Special Equipment Inspection and Test | | |
| inspection Condition | Temperature:29℃； Humidity:63%RH； Voltage:380V | | |
| Standard for Inspection | *Regulation for Type Tests of Elevators (TSG T7007-2016)*<br>*GB 7588-2003 Safety Rules for the Construction and Installation of Electric Lifts (Including No.1 amending list)*<br>*EN81-1+A3 :2009 Safety rules for the construction and installation of lifts-part 1: Electric lifts* | | |
| Conclusion | With the Type-Examination, it is confirmed that the product is compliance with the regulations of *Regulation for Type Test of Lifts (TSG T7007-2016).*<br>The product 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 *EN81-1+A3 :2009 Safety rules for the construction and installation of lifts-part 1: Electric lifts* | | |

| | | | |
|---|---|---|---|
| Inspected by | | Date: | 9-Aug-2017 |
| Reviewed by | | Date: | 10-Aug-2017 |
| Approved by | | Date: | 10-Aug-2017 |

Agency Approval Number：TS7610038-2021

(stamp)

Issued Date: 10-Aug-2017

## 1. Sample configuration and technical data

| | | | | | |
|---|---|---|---|---|---|
| Product name | | Lift traction machine | | Model/Type | WYT-V |
| Working condition | | Indoor | | Construction pattern | 3 phase AC permanent magnet synchronous structure without reduction device (shaft supported by two point) |
| Rated speed of driving machine | | 2.50 m/s | | Rated output torsion | 2020 N·m |
| Rated speed of lift | | 2.50 m/s | | Rated load of lift | 1250 kg |
| Allowable radial load of the traction sheave shaft | | 10000 kg | | Height of the center (without speed reducer) | 465 mm |
| Explosive-proof grade | | Not applicable | | Explosive-proof type | Not applicable |
| Hand winding device | | Yes | | | |
| Motor | Type code | WYT-V2.5CS50 | | Construction pattern | 3 phase AC permanent magnet synchronous Outer rotor |
| | Rated power | 20.3 kW | | Rated rotate speed | 96 r/min |
| | Rated voltage | 380 V | | Rated current | 45.5 A |
| | Rated frequency | 24 Hz | | Insulation grade | F |
| | Duty cycle | S5 | | Shell protection grade | IP41 |
| | Overload protection | Overheating | | Frequency of starter | 240F/H |
| | Explosion-proof sign | Not applicable | | Name of manufacturer | Shenyang Bluelight Drive Technology Co.,Ltd. |
| Reduction device | Structure pattern | Not applicable | | Reduction radio | Not applicable |
| | Reduce level | Not applicable | | Width between centers | Not applicable mm |
| | Crossed axis angle | Not applicable | | Lubricating oil specification | Not applicable |
| | Material grade of contacting surface on transmission pair | | | | Not applicable |
| Driving sheave | Groove quantity | 7 | | Groove shape | U shape with cut |
| | Hoist ropes diameter | 12 mm | | Heat treatment for groove surface | / |
| | Sheave pitch diameter | 500 mm | | Winding method | Single wrap |
| Brake | Type code | BLB | | Effect position | Traction sheave shaft |
| | Quantity and construction pattern | Straightly driving electromagnetic drum(Two dividedly installed) | | Insulation grade | F |
| | Rated working voltage for electromagnet | DC110 V | | Explosion-proof sign | Not applicable |
| | Brake drum diameter | 670 mm | | | |
| Driving system | Speed control method | Variable voltage variable frequency | Speed control | | Frequency converter |
| | Speed feedback device | Rotary encoder | | | |

## 2. Technical documents review

| No. | Project code | Items | Results | Conclusion |
|---|---|---|---|---|
| 1 | Y5.1 | Certificate and related technical data | Information Complete | Pass |
| 2 | Y5.2 | Calculation data | Information Complete | Pass |
| 3 | Y5.3 | 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 | Y6.1.1 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 | Y6.1.2 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. | Meet the requirements | Pass |
| 3 | Y6.2.1 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 | Y6.2.2 Packet set of brake system | For driving machine, All the brake mechanical part participated in applying brake force to the brake wheel (disk) shall be assembled by two groups. The action state of every group of mechanical part must be monitored<br>Note: The core in the magnetic coil is regarded as mechanical parts, but the coil itself is not. | Meet the requirements | Pass |
| 6 | Y6.2.3 Brake pressure of brake system | Pressure of brake gate tile or cushion shall be applied by a directive compression spring or a heavy weigh. If the brake is released by hand, a continuous force must be exerted to keep it open. | Meet the requirements | Pass |
| 7 | Y6.2.4 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§12.4.2.1, or is 2.5 times of the rated torque. | Meet the requirements | Pass |
| 8 | | If there is one group of part incapable of taking effect, the driving machine must stop working, and the rest brake shall be provided with enough brake force to enable the carriage loaded with the rated load to descend at reducing speed, namely, it should be greater than the rated torque. | 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 rowspan="3">9</td><td rowspan="3">Y6.2.5<br>Start and release voltage of electromagnet brake</td><td>Under the condition of satisfying 3.2.4, the lowest suction voltage of the brake electromagnet should not exceed 80% of the rated voltage.</td><td>67.00 V</td><td>Pass</td></tr>
<tr><td>Under the condition of satisfying 3.2.4,the highest release voltage of the brake electromagnet should not exceed 55% of the rated voltage.</td><td>30.00 V</td><td>Pass</td></tr>
<tr><td>Under the condition of satisfying 3.2.4, the lowest release voltage should not less than 10% of rated voltage.</td><td>29.00 V</td><td>Pass</td></tr>
<tr><td>10</td><td>Y6.2.6<br>Brake responding time</td><td>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.</td><td>Meet the requirements</td><td>Pass</td></tr>
<tr><td>11</td><td>Y6.2.7<br>Pressure resisting test of brake coil</td><td>For the coil voltage resisting test of the brake, the conductive part applies 1000 V to the ground for 1 min without puncturing phenomenon.</td><td>Meet the requirements</td><td>Pass</td></tr>
<tr><td>12</td><td>Y6.2.8<br>Use of belt</td><td>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.</td><td>Not applicable</td><td>/</td></tr>
<tr><td>13</td><td>Y6.2.9<br>Action test of the brake</td><td>The brake shall perform the action test for more than 2 millions time, the testing process shall be free from any maintenance; after finishing the test, the V3.2.4-V3.2.6 shall still satisfy the requirement.</td><td>Meet the requirements</td><td>Pass</td></tr>
<tr><td>14</td><td>Y6.2.10<br>brake noise test</td><td>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:
<table>
<tr><td>Rated torque N·m</td><td>≤700</td><td>＞700 ≤1500</td><td>＞1500</td></tr>
<tr><td>Noise dB(A) LPA</td><td>70</td><td>75</td><td>80</td></tr>
</table>
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)</td><td>58.60 dB(A)</td><td>Pass</td></tr>
<tr><td>15</td><td>Y6.3.1<br>Normal direction jumping of rope groove face of traction wheel</td><td>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</td><td>0.09 mm</td><td>Pass</td></tr>
<tr><td>16</td><td>Y6.3.2<br>Difference of pitch diameters of every rope groove of the traction wheel</td><td>The difference between the pitch diameters of every two grooves of the traction wheel rope grooves shall not be more than 0.10 mm.</td><td>0.03 mm</td><td>Pass</td></tr>
<tr><td>17</td><td>Y6.3.3<br>Hardness of rope groove of traction wheel</td><td>The groove face of the traction wheel shall uniform, the hardness difference is not more than 15 HBW.</td><td>3.00 HBW</td><td>Pass</td></tr>
</table>

<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>18</td><td>Y6.4<br>Reducer box</td><td>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$^2$</td><td>Not applicable</td><td>/</td></tr>
<tr><td rowspan="2">19</td><td rowspan="3">Y6.5.1<br>Temperature rise test</td><td rowspan="2">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:<br>(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</td><td>Motor stator winding:<br>F, 71.86K</td><td rowspan="2">Pass</td></tr>
<tr><td>Brake coil:<br>F,54.67K</td></tr>
<tr><td>20</td><td>(2)The oil temperature of the reduction box shall not exceed 85℃</td><td>Not applicable</td><td>/</td></tr>
<tr><td>21</td><td>(3) The elevator driving machine can normally run after the temperature rise test</td><td>Meet the requirements</td><td>Pass</td></tr>
<tr><td>22</td><td>Y6.5.2<br>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<br>≤4</th><th>＞4<br>≤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>48.10dB(A)</td><td>Pass</td></tr>
<tr><td>23</td><td rowspan="3">Y6.5.3<br>Idle vibration speed of elevator driving host</td><td>The vibration of the traction type elevator driving host shall satisfy the following requirements:<br>(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>Meet the requirements</td><td>Pass</td></tr>
<tr><td>24</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>25</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>
</table>

| No. | Project code and name | Project contents and requirements | Results | Conclusion |
|---|---|---|---|---|
| 26 | Y6.5.4 Speed | 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. | 2.53m/s, 100.80% | Pass |
| 27 | Y6.5.5 Appearance | The oil level in the reducer box should be observed easily. Hand winding crank shall be partly or completely yellow. The manual lock loosing spanner of the elevator driving host brake shall be red. | Meet the requirements | Pass |
| 28 | Y6.5.6 Nameplate of elevator driving host | 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) rated speed (or elevator rated speed); (3) rated power; (4) rated voltage; (5) rated current; (6) rated frequency; (7) rated output torque (or rated load weight); (8) protection grade; (9) product No. (10)manufacturing date; (11) manufacturer name and manufacturing address; (12) Name or logo of the type-test agency | Meet the requirements | Pass |

**3.2 Sample Drawing**



# 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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