



# Special Equipment Type Test Report (Lifts)

**Classification** : Safety device  
**Varieties** : Unintended car movement protection means  
**Product name** : Unintended car movement protection means(Subsystem of stopping)  
**Product model** : MEKB  
**Manufacturer** : ZheJiang MATO Drive Equipment Co.,Ltd.  
**Applicant** : ZheJiang MATO Drive Equipment Co.,Ltd.  
**Category of test** : First verification  
**Test date** : 2019-04-03

Shanghai Jiao Tong University  
Elevator Test Center



# NOTICE

- 1、 The report is the result of the type test according to the “Regulation for type test of elevators”(TSG T7007-2016).
- 2、 The report is printed by computer and will be invalid with any modification.
- 3、 The report will be invalid without the signature of approve 、 verify and compile person .It will also be invalid without the certification number 、 the official and cross-page stamp of the testing unit.
- 4、 In the entrusted test, we are only responsible for the sample.
- 5、 It is forbidden to copy the report partly without the permission of the testing unit. The partly copied report will be invalid.
- 6、 Any dissent to the report must be put forward to the testing unit within 15 working days from receiving it, otherwise, it is considered that you have accepted the report.
- 7、 The sample will not be handed back because of normal wear, the others will be dealt with according to the regulation concerned.
- 8、 One of the quadruplicated reports is saved by the testing unit,the other three are saved by the applicant.
- 9、 The contact addresses of Shanghai Jiaotong University Elevator Test Center are as follows:

**(1)Dongchuan Road Test Base**

**Room B210, School of Mechanical Engineering, Shanghai Jiaotong University  
No.800, Dongchuan Road, Minhang District, Shanghai, P.R. China**

**Tel: +86-21-34207035/34207036**

**Fax: +86-21-34207035/34207036-814**

**Zip code: 200240**

**(2) Jindu Road Test Base**

**Room 1001, Comprehensive Building, South Urban Park**

**No.123, lane 1165, Jindu Road, Minhang District, Shanghai, P.R. China**

**Tel : +86-21-61267037**

**Fax : +86-21-61267037 to 812**

**Zip code: 201108**



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## Type Tests Report

No: ETC19F380YZ005

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|                                    |   |   |  |
|------------------------------------|---|---|--|
| Classification                     | Safety device   | Varieties   | Unintended car movement protection means |
| Product name                       | Unintended car movement protection means(Subsystem of stopping)                                       | Product type  | MEKB                                     |
| Serial number                      | M5A18000358R  | Date of manufacture completion  | 2018-11-05                               |
| Applicable product types           | /   |   |  |
| Applicant                          | ZheJiang MATO Drive Equipment Co.,Ltd.  |   |  |
| Registered address of applicant    | workshops 1#, building 3, No.2688 West Nianfeng Road, Nanxun District, Huzhou City, Zhejiang Province |   |  |
| Manufacturer                       | ZheJiang MATO Drive Equipment Co.,Ltd.  |   |  |
| Registered address of manufacturer | workshops 1#, building 3, No.2688 West Nianfeng Road, Nanxun District, Huzhou City, Zhejiang Province |   |  |
| Address of manufacturing           | workshops 1#, building 3, No.2688 West Nianfeng Road, Nanxun District, Huzhou City, Zhejiang Province |   |  |
| Testing address                    | Shanghai Jiao Tong University Elevator Test Center  |   |  |
| Status of sample                   | OK  | Test date   | 2019-04-03                               |
| Test conditions                    | OK  | Test items  | First verification                       |
| Test rules                         | TSG T7007-2016,GB7588-2003+XG1-2015、 EN 81-20:2014、 EN 81-50:2014                                     |   |  |
| Test conclusion                    | Tests passed  |   |  |
| Experimenter: 陈冲                   | Date: 2019-04-23  | Approved certificate serial number:<br>TS7610022-2021<br><br>Shanghai Jiao Tong University<br>Elevator Test Center<br>Date of issue: 2019-04-23 |  |
| Verifier: 洪荣凯                      | Date: 2019-04-23  |   |  |
| Approver: 张羽                       | Date: 2019-04-23  |   |  |



1、 Main technical parameter and configuration

|                              |                            |  |        |                         |                            |                                       |                                     |                     |   |       |  |
|------------------------------|----------------------------|--|--------|-------------------------|----------------------------|---------------------------------------|-------------------------------------|---------------------|---|-------|--|
| Applied environment          |                            | Indoors  |        | Explosion-proof type    |                            | /                                     |                                     |                     |   |       |  |
| System composition           |                            |  |        | Synchronous motor brake |                            |                                       |                                     |                     |   |       |  |
| Subsystem of stopping        | Scope of application       | Range of system mass permitted                       |        | 1350~3600(kg)           |                            | Range of rated load                   |                                     | 320-1050(kg)        |   |       |  |
|                              |                            | Range of balance coefficient                         |        | 0.4~0.5                 |                            | Range of weight of car                |                                     | 550~1500(kg)        |   |       |  |
|                              |                            | Highest speed anticipated before deceleration occurs |        |                         |                            |                                       |                                     | 1.84~2.40 (m/s)     |   |       |  |
|                              |                            | Test traction ratio                                  |        |                         |                            |                                       |                                     | 2:1                 |   |       |  |
|                              |                            | Test-speed with relevant for Final Inspection use    |        |                         | ≤ 0.50m/s                  |                                       | Verification distance of test-speed |                     |   | ≤0.5m |  |
|                              |                            | Name of stopping element                             |        | Synchronous motor brake |                            | Driving mode                          |                                     | Traction            |   |       |  |
|                              |                            | Acting position of stopping element                  |        |                         |                            | On the shaft of the traction sheave   |                                     |                     |   |       |  |
|                              |                            | Action method  |        |                         |                            | Stopping when power supply loss       |                                     |                     |   |       |  |
|                              |                            | Response time  |        | ≤138ms                  |                            | Maximum average retardation           |                                     | 2.5m/s <sup>2</sup> |   |       |  |
|                              |                            | Actuator   | Name   |                         | /                          |                                       | Type                                |                     | / |       |  |
|                              | Hardware model and version |  | /      |                         | Software model and version |                                       | /                                   |                     |   |       |  |
|                              | Main component of hardware |  | /      |                         | Action method              |                                       | /                                   |                     |   |       |  |
|                              | Rated power                |  | /      |                         | Working voltage            |                                       | /                                   |                     |   |       |  |
|                              | Synchronous motor brake    | Name   |        | Brake                   |                            | Type                                  |                                     | MEKB                |   |       |  |
| Manufacturer                 |                            | ZheJiang MATO Drive Equipment Co.,Ltd.               |        |                         |                            |                                       |                                     |                     |   |       |  |
| Type of structure            |                            | Block  |        | Quantity                |                            | 2                                     |                                     |                     |   |       |  |
| Material of friction element |                            | Asbestos-free carbon fibers                          |        | Type of elastic element |                            | Compressed cylindrical helical spring |                                     |                     |   |       |  |
| Length of brake arm          |                            | / m  |        | Leverage ratio          |                            | /                                     |                                     |                     |   |       |  |
| Diameter of brake wheel      |                            |  | Φ500mm |                         | Spring of brake& quantity  |                                       | Φ9.7×6×40<br>10 pieces              |                     |   |       |  |

**2、 Technical documents review of the example**

| No. | Item number | Review item                            | Result          | Conclusion |
|-----|-------------|--|-----------------|------------|
| 1   | T5.1        | Copies of certificates or test reports | Pass            | Ok         |
| 2   | T5.2        | Technical documents                    | Pass            | Ok         |
| 3   | T5.3        | Design documents in covered scope      | Pass            | Ok         |
| 4   | --          | Any other necessary                    | Inapplicability | /          |

**3、 Examines and tests of the example**

| No. | Item number | Review item                                    | Result          | Conclusion |
|-----|-------------|--|-----------------|------------|
| 1   | T6.1.1      | Subsystem of stopping(Single mass or torque)   | Pass            | Ok         |
| 2   | T6.1.2      | Subsystem of stopping(Differentmass or torque) | Inapplicability | /          |
| 3   | T6.1.3      | Brake test                                     | Pass            | Ok         |
| 4   | T6.1.4      | Distance of test speed                         | Pass            | Ok         |
| 5   | T6.2        | Subsystem of detection                         | Inapplicability | /          |
| 6   | T6.3        | Subsystem of self monitoring                   | Inapplicability | /          |
| 7   | T6.4        | Nameplate                                      | Pass            | Ok         |



Annex

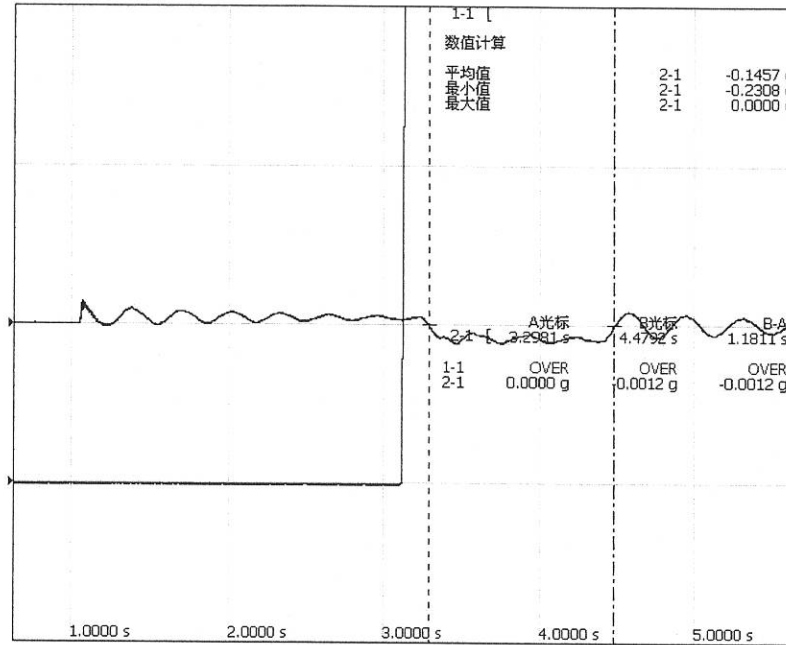
1.Data Sheet

| Condition           | Free fall acceleration (m/s <sup>2</sup> ) |                        | Average deceleration (m/s <sup>2</sup> ) |                        | Max deceleration (m/s <sup>2</sup> ) | Max speed (m/s) | Response time of braking element (ms) |                        | Total distance travelled (mm) |         |               |
|---------------------|--|------------------------|--|------------------------|--------------------------------------|-----------------|---------------------------------------|------------------------|-------------------------------|---------|---------------|
|                     | Measurement                                | Average a <sub>2</sub> | Measurement                              | Average a <sub>3</sub> |                                      |                 | Measurement                           | Average t <sub>2</sub> | Measurement                   | Average | Deviation (%) |
| Min mass: No load   | /  | /                      | /  | /                      | /                                    | /               | /                                     | /                      | /                             | /       | /             |
|                     | /  |                        | /  |                        | /                                    | /               | /                                     |                        |                               |         |               |
|                     | /  |                        | /  |                        | /                                    | /               | /                                     |                        |                               |         |               |
|                     | /  |                        | /  |                        | /                                    | /               | /                                     |                        |                               |         |               |
|                     | /  |                        | /  |                        | /                                    | /               | /                                     |                        |                               |         |               |
| Min mass: Full load | /  | /                      | /  | /                      | /                                    | /               | /                                     | /                      | /                             | /       | /             |
|                     | /  |                        | /  |                        | /                                    | /               | /                                     |                        |                               |         |               |
|                     | /  |                        | /  |                        | /                                    | /               | /                                     |                        |                               |         |               |
|                     | /  |                        | /  |                        | /                                    | /               | /                                     |                        |                               |         |               |
|                     | /  |                        | /  |                        | /                                    | /               | /                                     |                        |                               |         |               |
| Max mass: No load   | 0.78                                       | 0.78                   | 1.43                                     | 1.35                   | 2.26                                 | 1.61            | 138                                   | 138                    | 997                           | 993     | 0.44          |
|                     | 0.78                                       |                        | 1.38                                     |                        | 2.12                                 | 1.61            | 138                                   |                        | 998                           |         | 0.55          |
|                     | 0.78                                       |                        | 1.34                                     |                        | 2.11                                 | 1.61            | 138                                   |                        | 993                           |         | 0.05          |
|                     | 0.78                                       |                        | 1.33                                     |                        | 2.16                                 | 1.61            | 138                                   |                        | 980                           |         | -1.27         |
|                     | 0.78                                       |                        | 1.29                                     |                        | 2.10                                 | 1.61            | 138                                   |                        | 995                           |         | 0.23          |
| Max mass: Full load | /  | /                      | /  | /                      | /                                    | /               | /                                     | /                      | /                             | /       | /             |
|                     | /  |                        | /  |                        | /                                    | /               | /                                     |                        |                               |         |               |
|                     | /  |                        | /  |                        | /                                    | /               | /                                     |                        |                               |         |               |
|                     | /  |                        | /  |                        | /                                    | /               | /                                     |                        |                               |         |               |
|                     | /  |                        | /  |                        | /                                    | /               | /                                     |                        |                               |         |               |
| Test -speed         | /  | /                      | /  | /                      | /                                    | /               | /                                     | /                      | /                             | /       | /             |
|                     | /  |                        | /  |                        | /                                    | /               | /                                     |                        |                               |         |               |
|                     | /  |                        | /  |                        | /                                    | /               | /                                     |                        |                               |         |               |

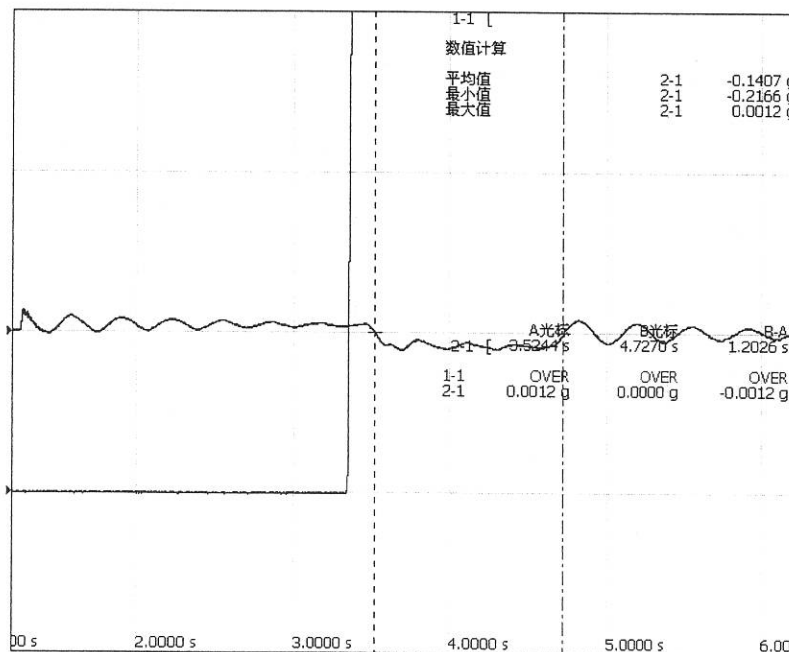


## 2. Test curve

2.1 Traction ratio 2:1, System mass 3600kg, car mass 1500kg, counterweight 2000kg, corresponding rated load 1050kg, No load 1st:

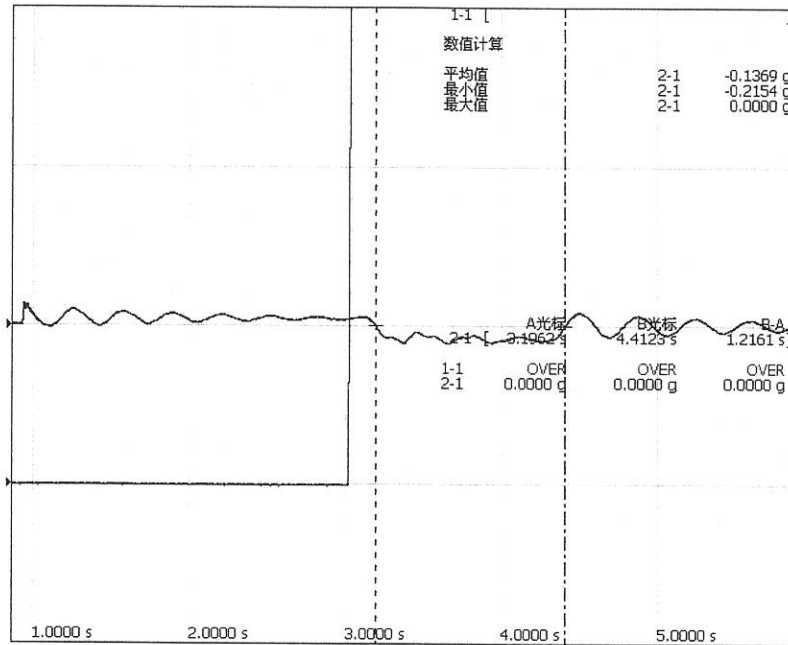


2.2 Traction ratio 2:1, System mass 3600kg, car mass 1500kg, counterweight 2000kg, corresponding rated load 1050kg, No load 2nd:

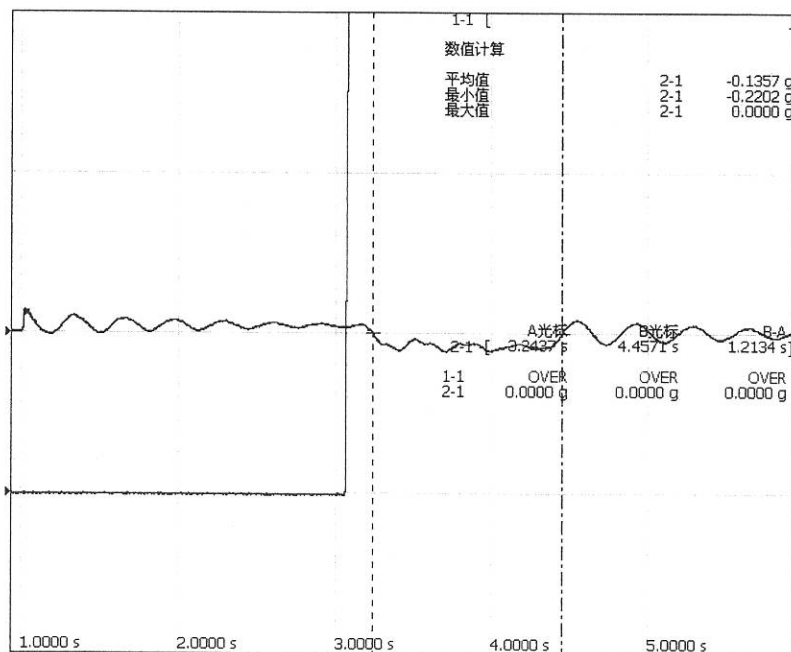




2.3 Traction ratio 2:1, System mass 3600kg, car mass 1500kg, counterweight 2000kg, corresponding rated load 1050kg, No load 3rd:



2.4 Traction ratio 2:1, System mass 3600kg, car mass 1500kg, counterweight 2000kg, corresponding rated load 1050kg, No load 4th:







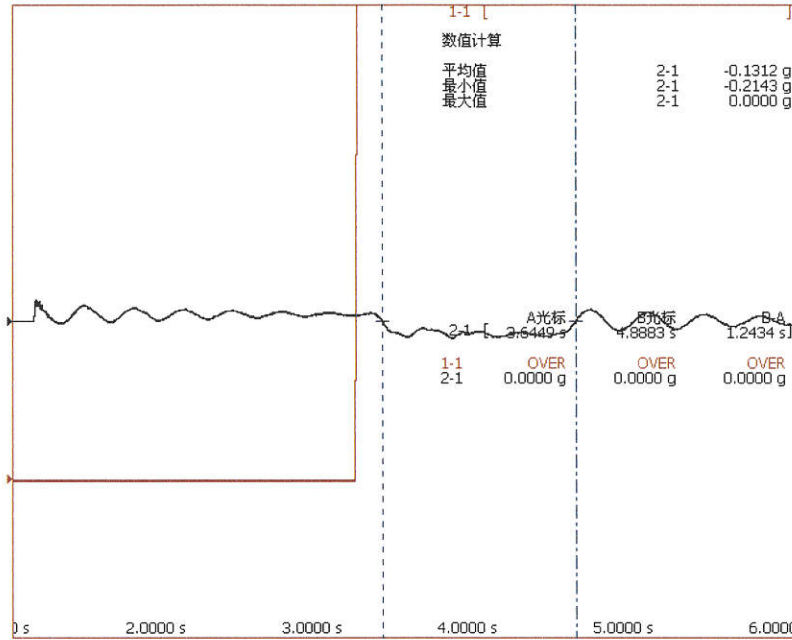
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# Type Tests Report

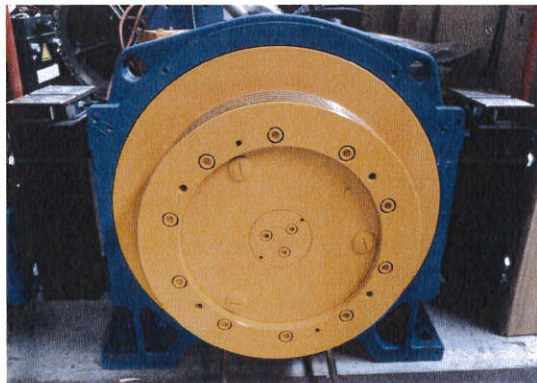
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2.5 Traction ratio 2:1, System mass 3600kg, car mass 1500kg, counterweight 2000kg, corresponding rated load 1050kg, No load 5th:



### 3. Photograph of the sample



### 4. Note:

4.1 The system mass includes not only the mass of the car and the counterweight, but also the mass of traction rope, compensation chain /rope and traveling cable. In the test, their total mass are 100kg.

4.2 This type is a consistency verification, selected the rules of elevator type test (TSG T7007-2016). The provisions of part of the project were tested.

5. Explanation of modification: No.