检 测
CNAS L0454

2008000708Z

(2008)国认监认字(134)号

Special Equipment Type Test Report

Report No. T3-F32-09-082

Category of Equipment:	**Safety Protection Component**
Type of Equipment:	**Safety Gear**
Name of Product:	**Progressive Safety Gear**
Model of Product:	**PS35A**
Applicant:	**Otis Elevator Korea**
Manufacturer:	**Otis Elevator Korea**

NETEC

National Elevator Inspection and Testing Center

NOTICE

1. Each type test certificate issued by National Elevator Inspection and Testing Center (abbreviation NETEC) is corresponding to one type test report. The issue of type test certificate is based on the test conclusions of type test report.

2. Type test report is invalid without stamping the *Test Report Specialized Stamp* or issue date.

3. Type test certificate is invalid without stamping the *Test Report Specialized Stamp* or issue date.

4. Type test report is invalid without signatures of chief test, verification and approval.

5. Type test report or certificate can not be reproduced except in full, without written approval of NETEC.

6. Type test report or certificate including annex is invalid if altered.

7. NETEC is only responsible for the test items and test conclusions of the sample. The test results and test conclusions just indicate sample statue at the time of test. Applicant is responsible for the authenticity of the information and technical documents of the sample.

8. Different opinions about type test report or certificate should be reported to NETEC within 15 days since receiving of type test report and certificate. NETEC will refuse after the time.

9. Type test report and certificate are invalid from the issue date. The term of validity is according to *TSG T7001 Rules for Type Test of Elevators(tryout)* promulgated by *General Administration of Quality Supervision Inspection and Quarantine of the People's Republic of China.*

10. It should be subject to the Chinese version, while the English version is for reference only.

Add.: 61 Jinguang Avenue, Langfang City, 065000 Hebei, P. R. China
Tel.: 0316-2311414, 2311411, 2311412
Fax: 0316-2057334
Email: netec@chinaelevator.org
Web site: www.chinaelevator.org/center

Type Test Report

Name of product	Progressive safety gear			
Model and specification	PS35A Rated speeds: 0.63~1.75m/s permissible masses: 1000~2700kg			
Serial No. of sample	/		Production date	2009-07
Main technical parameter	Construction	Single-draw Single-wedge	Permissible thickness of the guide rails blade	9 mm, 10mm
	Rated speeds	0.63~1.75m/s	Minimum width of the gripping areas	23mm
	Tripping speeds of overspeed governor	0.72~2.56m/s	Hardness of the guide rails	HB 105~160
	Permissible masses	1000~2700kg	Surface condition of the guide rails	Machined
	Construction of elastic parts	Combination of disc springs	State of lubrication of the guide rails	Dry rails/ Oiled rails
	Type of guide rails	T75/B, T75-3/B, T78/B (8K), T82/B		
Applicant	Name	Otis Elevator Korea		
	Address	74, Seongsan-dong, Changwon City, Gyeong-nam 641-714, Korea		
Manufacturer	Name	Otis Elevator Korea		
	Address	74, Seongsan-dong, Changwon City, Gyeong-nam 641-714, Korea		
Receiving date	2009-12-18		Sample No.	A2009-1205-1206
Test date	2009-07-27, 2009-12-25		Sample state	No abnormity
Test place	Otis Elevator Korea		Test category	Type test
Test condition	Comply with requirements		Test item	All application items
Test basis	*Rules for Type Test of Elevators (tryout)* *Rule for Type Test of Safety Gear (tryout)*			
Test conclusion	Rated speeds of the safety gear are 0.63~1.75m/s , The limits of permissible masses are 958~3065 kg with dry rails. The limits of permissible masses are 939~2900 kg with oiled rails. The safety gears can be used for both car side and counterweight side. The type test is certificated. Issue date: Mar. 08 2010			

Reported by: 焦洋 Verified by: 谷云洁 Issued by: 张新

1 Determination of permissible mass (dry rails)

1.1 Determination of the maximum permissible mass

1.1.1 Test condition

Rated speed v	1.75m/s	Test total mass	2700kg
Tripping speed of overspeed governor v_1	2.56m/s	Height of free fall	335mm
Type of guide rails	T78/B		

1.1.2 Test data record table 1

No.	Total height of the fall mm	Sliding distance of overspeed governor rope mm	Total travel of the elements forming the spring mm		Braking distance mm		Average braking distance mm
			Left	Right	Left	Right	
1	705	370	/	/	370	370	370
2	775	440	/	/	440	440	440
3	1045	710	/	/	710	710	710
4	1055	720	/	/	720	720	720

1.1.3 Test data record table 2

No.	Minimum retardation g_n	Smallest instantaneous braking force N	Maximum retardation g_n	Greatest instantaneous braking force N	Average retardation g_n	Average braking force N	Mean of average braking forces N	Deviation of average braking force %	Total permissible mass kg
1	0.285	34036	1.538	67224	0.976	52338	45617	+14.7	2851
2	0.352	35810	1.257	59781	0.841	48763		+6.9	
3	0.276	33797	1.025	53636	0.571	41611		-8.8	
4	0.166	30884	0.830	48471	0.501	39757		-12.8	

1.1.4 Deviation between total permissible mass and test total mass: +5.6%

1.2 Determination of the middle permissible mass

1.2.1 Test condition

Rated speed v	1.75m/s	Test total mass	1850kg
Tripping speed of overspeed governor v_1	2.56m/s	Height of free fall	335mm
Type of guide rails	T78/B		

1.2.2 Test data record table 1

No.	Total height of the fall mm	Sliding distance of overspeed governor rope mm	Total travel of the elements forming the spring mm		Braking distance mm		Average braking distance mm
			Left	Right	Left	Right	
1	810	475	/	/	475	475	475
2	945	610	/	/	610	610	610
3	1152	817	/	/	817	817	817
4	900	565	/	/	565	565	565

1.2.3 Test data record table 2

No.	Minimum retardation g_n	Smallest instantaneous braking force N	Maximum retardation g_n	Greatest instantaneous braking force N	Average retardation g_n	Average braking force N	Mean of average braking forces N	Deviation of average braking force %	Total permissible mass kg
1	0.266	22976	1.214	40181	0.839	33375	31174	+7.1	1948
2	0.312	23811	1.178	39527	0.734	31469		+0.9	
3	0.288	23375	1.110	38293	0.553	28185		-9.6	
4	0.264	22940	1.196	39854	0.745	31669		+1.6	

1.2.4 Deviation between total permissible mass and test total mass: +5.3%

1.3 Determination of the minimum permissible mass

1.3.1 Test condition

Rated speed v	1.75m/s	Test total mass	1000kg
Tripping speed of overspeed governor v_1	2.56m/s	Height of free fall	335mm
Type of guide rails	T78/B		

1.3.2 Test data record table 1

No.	Total height of the fall mm	Sliding distance of overspeed governor rope mm	Total travel of the elements forming the spring mm		Braking distance mm		Average braking distance mm
			Left	Right	Left	Right	
1	830	495	/	/	495	495	495
2	930	595	/	/	595	595	595
3	905	570	/	/	570	570	570
4	830	495	/	/	495	495	495

1.3.3 Test data record table 2

No.	Minimum retardation g_n	Smallest instantaneous braking force N	Maximum retardation g_n	Greatest instantaneous braking force N	Average retardation g_n	Average braking force N	Mean of average braking forces N	Deviation of average braking force %	Total permissible mass kg
1	0.254	12302	1.251	22082	0.756	17226	16572	+3.9	1036
2	0.369	13430	0.732	16991	0.509	14803		-10.7	
3	0.253	12292	1.293	22494	0.711	16785		+1.3	
4	0.163	11409	1.275	22318	0.781	17472		+5.4	

1.3.4 Deviation between total permissible mass and test total mass: +3.6%

1.4 Limits of the permissible masses: 958~3065 kg

2 Verify permissible mass referring to the minimum tripping speed of overspeed governor

2.1 Test condition

No.	Rated speed v	Tripping speed of overspeed governor v_1	Test total mass	Height of free fall	Type of guide rails
1	0.63m/s	0.72m/s	2700kg	26mm	T78/B
2	0.63m/s	0.72m/s	1850kg	26mm	T78/B
3	0.63m/s	0.72m/s	1000kg	26mm	T78/B

2.2 Test data record table 1

No.	Total height of the fall mm	Sliding distance of overspeed governor rope mm	Total travel of the elements forming the spring mm		Braking distance mm		Average braking distance mm
			Left	Right	Left	Right	
1	72	46	/	/	46	46	46
2	71	45	/	/	45	45	45
3	71	45	/	/	45	45	45

2.3 Test data record table 2

No.	Minimum retardation g_n	Smallest instantaneous braking force N	Maximum retardation g_n	Greatest instantaneous braking force N	Average retardation g_n	Average braking force N	The former mean of average braking force N	Deviation of average braking force %
1	0.252	33162	1.056	54457	0.556	41214	45617	-9.7
2	0.203	21833	0.952	35426	0.567	28439	31174	-8.8
3	0.231	12076	0.915	18786	0.584	15539	16572	-6.2

Note: $\textit{Deviation of average braking force} = \dfrac{\textit{Average braking force-The former average braking force}}{\textit{The former average braking force}} \times 100\%$

3 Determination of permissible mass (oiled rails)

3.1 Determination of the maximum permissible mass

3.1.1 Test condition

Rated speed v	1.75m/s	Test total mass	2700kg
Tripping speed of overspeed governor v_1	2.56m/s	Height of free fall	335mm
Type of guide rails	T78/B		

3.1.2 Test data record table 1

No.	Total height of the fall mm	Sliding distance of overspeed governor rope mm	Total travel of the elements forming the spring mm		Braking distance mm		Average braking distance mm
			Left	Right	Left	Right	
1	845	503	/	/	480	485	483
2	1015	628	/	/	575	580	578
3	1023	633	/	/	581	585	583
4	802	453	/	/	410	415	413

3.1.3 Test data record table 2

No.	Minimum retardation g_n	Smallest instantaneous braking force N	Maximum retardation g_n	Greatest instantaneous braking force N	Average retardation g_n	Average braking force N	Mean of average braking forces N	Deviation of average braking force %	Total permissible mass kg
1	0.373	36367	1.123	56232	0.708	45240	43167	+4.8	2698
2	0.246	33003	0.923	50935	0.556	41214		-4.5	
3	0.105	29268	0.777	47067	0.484	39307		-8.9	
4	0.296	34326	1.324	61556	0.771	46908		+8.7	

3.1.4 Deviation between total permissible mass and test total mass: -0.1%

3.2 Determination of the middle permissible mass

3.2.1 Test condition

Rated speed v	1.75m/s	Test total mass	1850kg
Tripping speed of overspeed governor v_1	2.56m/s	Height of free fall	335mm
Type of guide rails	T78/B		

3.2.2 Test data record table 1

No.	Total height of the fall mm	Sliding distance of overspeed governor rope mm	Total travel of the elements forming the spring mm		Braking distance mm		Average braking distance mm
			Left	Right	Left	Right	
1	812	470	/	/	420	425	423
2	885	537	/	/	484	489	487
3	1023	613	/	/	560	565	563
4	840	516	/	/	463	468	466

3.2.3 Test data record table 2

No.	Minimum retardation g_n	Smallest instantaneous braking force N	Maximum retardation g_n	Greatest instantaneous braking force N	Average retardation g_n	Average braking force N	Mean of average braking forces N	Deviation of average braking force %	Total permissible mass kg
1	0.141	20707	1.180	39564	0.503	27277	29573	-7.8	1848
2	0.145	20780	1.175	39473	0.891	34319		+16.0	
3	0.288	23395	1.143	38892	0.606	29146		-14.4	
4	0.306	23702	0.904	34555	0.518	27549		-6.8	

3.2.4 Deviation between total permissible mass and test total mass: -0.1%

3.3 Determination of the minimum permissible mass

3.3.1 Test condition

Rated speed v	1.75m/s	Test total mass	1000kg
Tripping speed of overspeed governor v_1	2.56m/s	Height of free fall	335mm
Type of guide rails	T78/B		

3.3.2 Test data record table 1

No.	Total height of the fall mm	Sliding distance of overspeed governor rope mm	Total travel of the elements forming the spring mm		Braking distance mm		Average braking distance mm
			Left	Right	Left	Right	
1	835	493	/	/	440	445	443
2	824	480	/	/	445	450	448
3	915	578	/	/	525	530	528
4	808	463	/	/	410	415	413

3.3.3 Test data record table 2

No.	Minimum retardation g_n	Smallest instantaneous braking force N	Maximum retardation g_n	Greatest instantaneous braking force N	Average retardation g_n	Average braking force N	Mean of average braking forces N	Deviation of average braking force %	Total permissible mass kg
1	0.211	11880	1.750	26978	0.624	15931	16245	-1.9	1015
2	0.163	11409	1.315	22710	0.691	16589		+2.1	
3	0.231	12076	1.596	25467	0.515	14862		-8.5	
4	0.610	15794	1.373	23279	0.794	17599		+8.3	

3.3.4 Deviation between total permissible mass and test total mass: +1.5%

3.4 Limits of the permissible masses: 939~2900 kg

4 Verify permissible mass referring to the minimum tripping speed of overspeed governor

4.1 Test condition

No.	Rated speed v	Tripping speed of overspeed governor v_1	Test total mass	Height of free fall	Type of guide rails
1	0.63m/s	0.72m/s	2700kg	26mm	T78/B
2	0.63m/s	0.72m/s	1850kg	26mm	T78/B
3	0.63m/s	0.72m/s	1000kg	26mm	T78/B

4.2 Test data record table 1

No.	Total height of the fall mm	Sliding distance of overspeed governor rope mm	Total travel of the elements forming the spring mm		Braking distance mm		Average braking distance mm
			Left	Right	Left	Right	
1	282	243	/	/	190	195	193
2	361	293	/	/	240	245	243
3	190	148	/	/	95	100	98

4.3 Test data record table 2

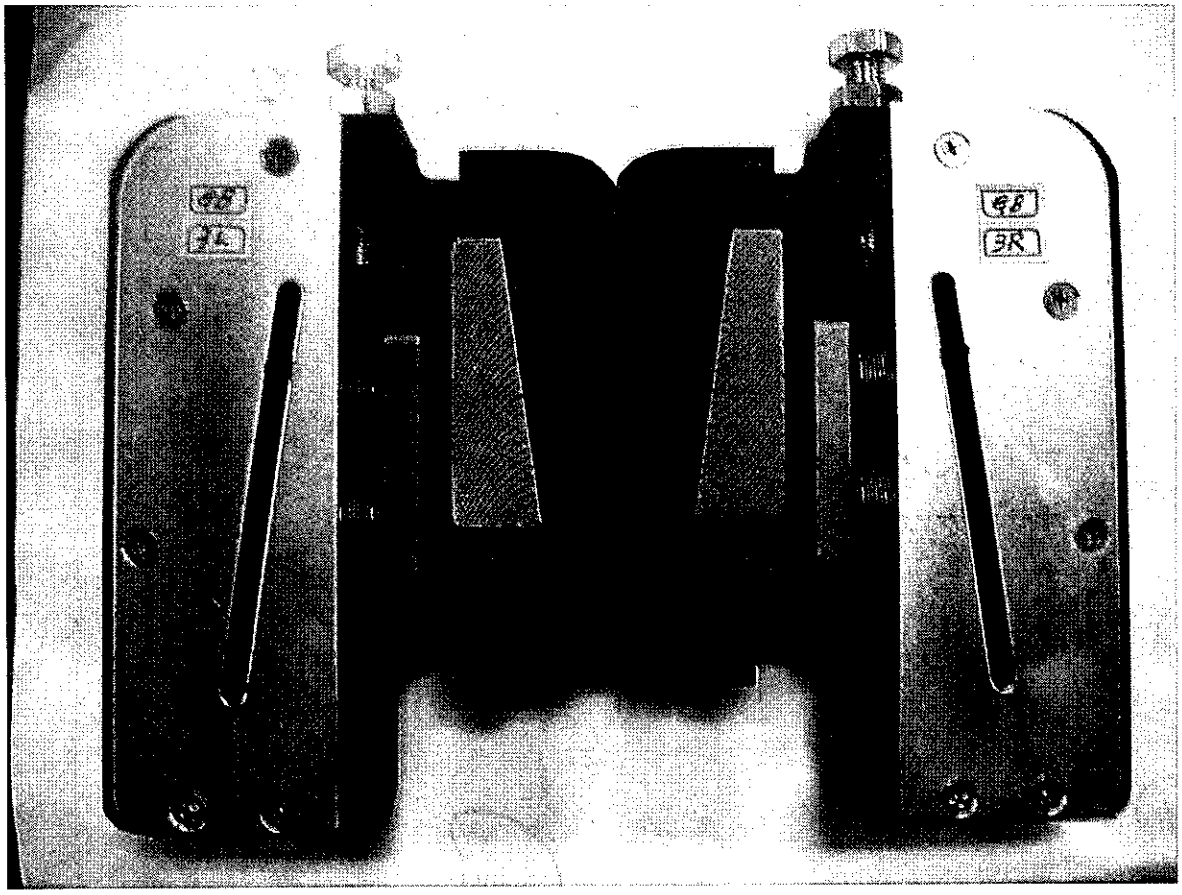
No.	Minimum retardation g_n	Smallest instantaneous braking force N	Maximum retardation g_n	Greatest instantaneous braking force N	Average retardation g_n	Average braking force N	The former mean of average braking force N	Deviation of average braking force %
1	0.452	38459	1.409	63807	0.805	47809	43167	+10.8
2	0.293	23466	0.578	28638	0.385	25136	29573	-15.0
3	0.795	17609	0.982	19443	0.764	17305	16245	+6.5

Note: $\text{Deviation of average braking force} = \frac{\text{Average braking force-The former average braking force}}{\text{The former average braking force}} \times 100\%$

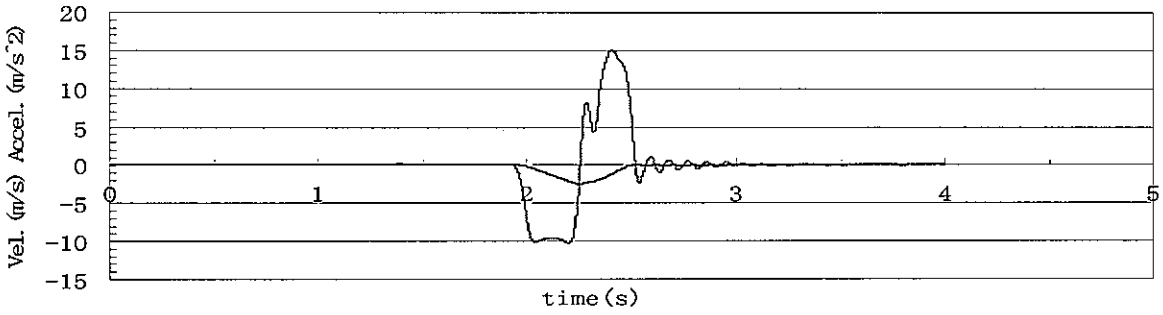
5 Checking after the tests:

The applicant hasn't submitted the hardness of the block and the gripping elements.
A little wear was observed at the gripping elements.
No cracks or deformations were observed at the block and the gripping elements.

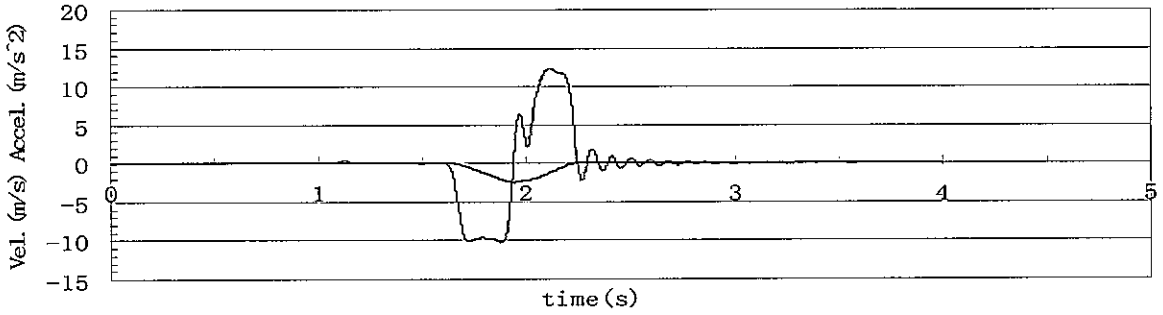
Appendix 1 Sample photo



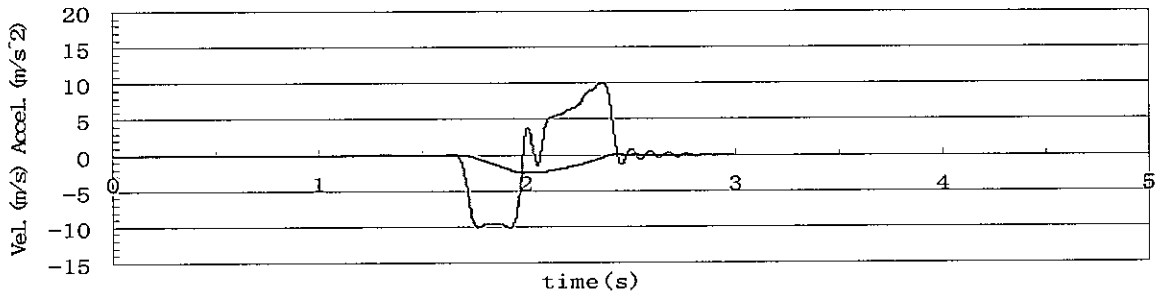
Appendix 2 Test charts



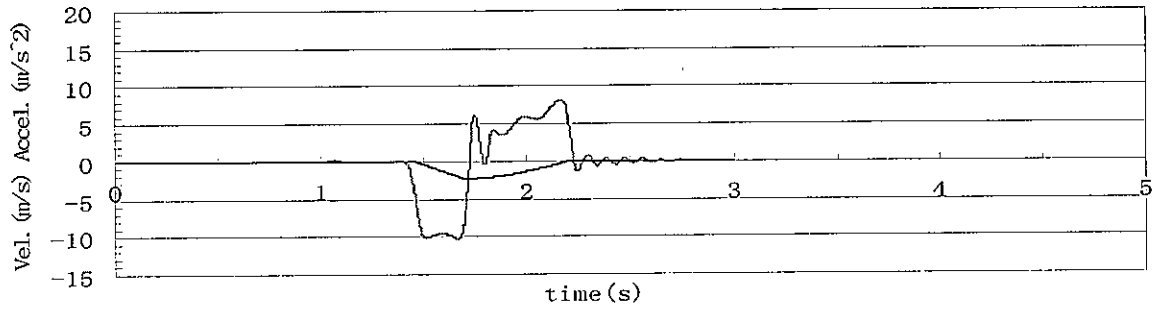
Rated speed: 1.75m/s Test total mass: 2700kg 1st (dry rails)



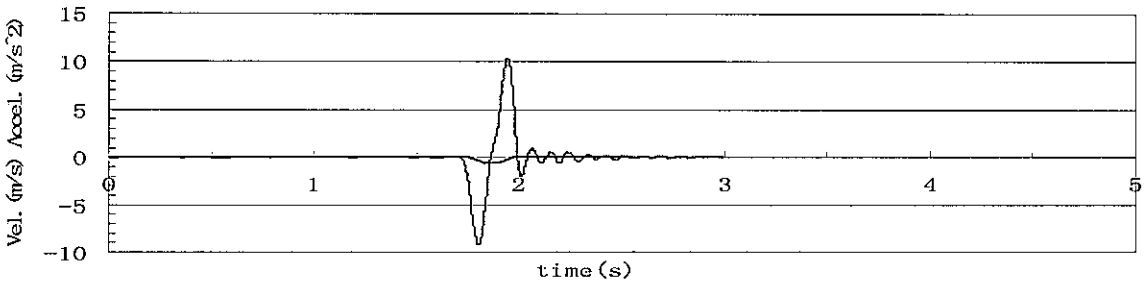
Rated speed: 1.75m/s Test total mass: 2700kg 2nd (dry rails)



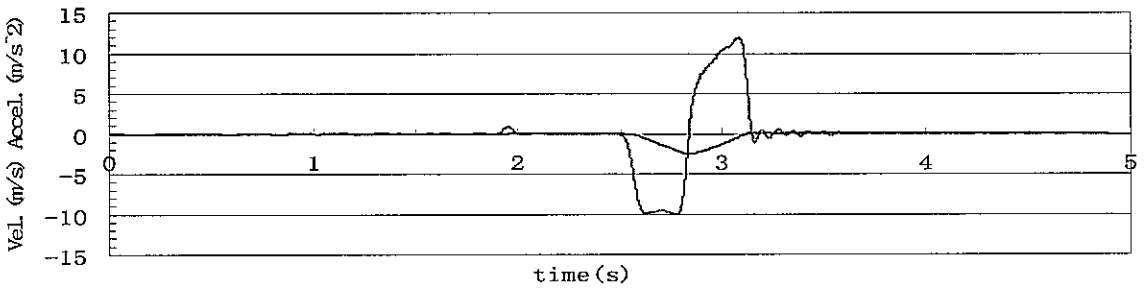
Rated speed: 1.75m/s Test total mass: 2700kg 3rd (dry rails)



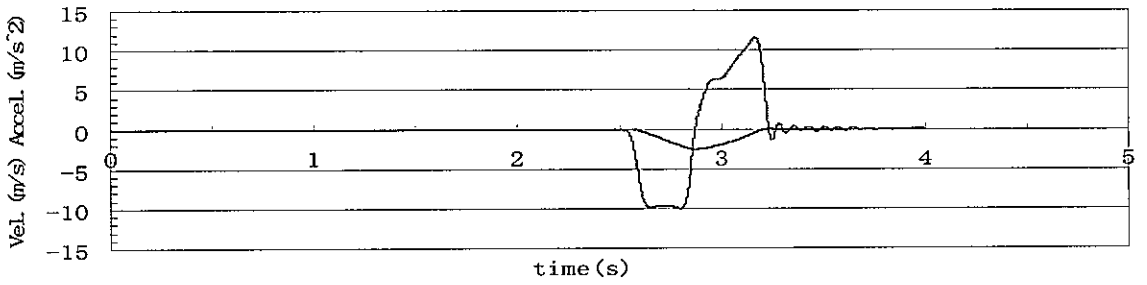
Rated speed: 1.75m/s Test total mass: 2700kg 4th (dry rails)



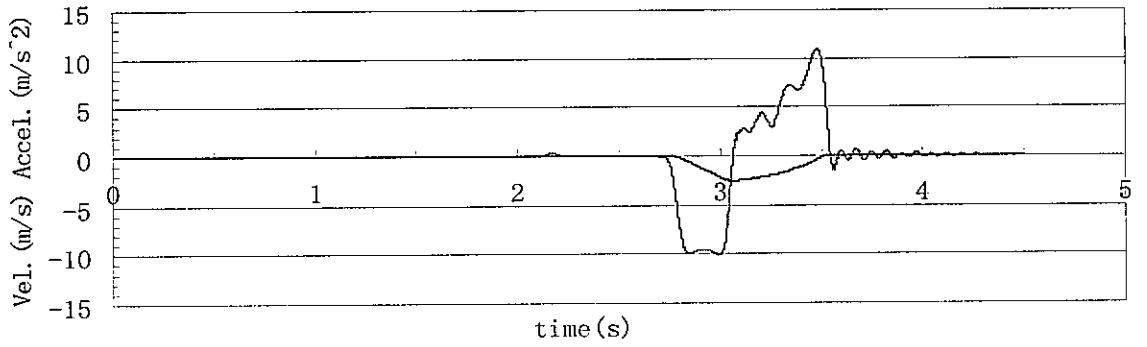
Rated speed: 0.63m/s Test total mass: 2700kg (dry rails)



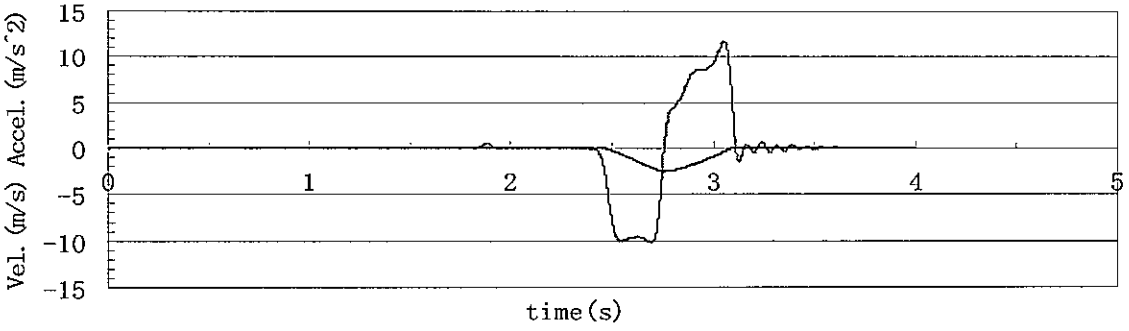
Rated speed: 1.75m/s Test total mass: 1850kg 1st (dry rails)



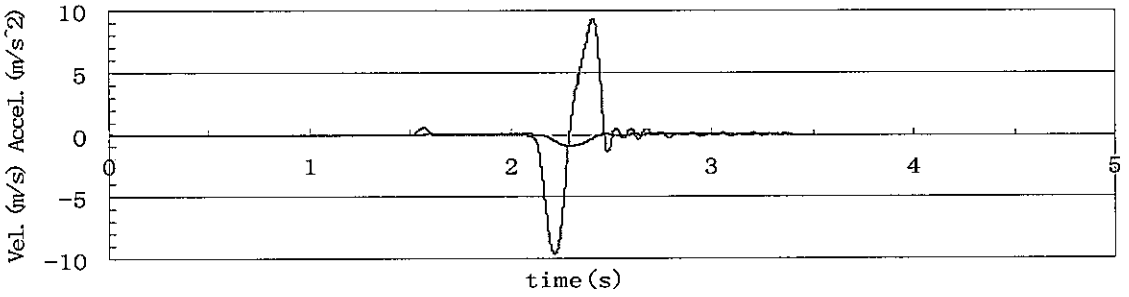
Rated speed: 1.75m/s Test total mass: 1850kg 2nd (dry rails)



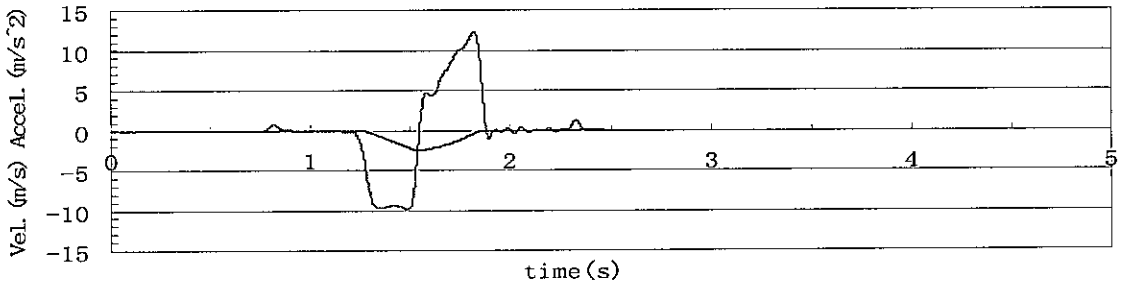
Rated speed: 1.75m/s Test total mass: 1850kg 3rd (dry rails)



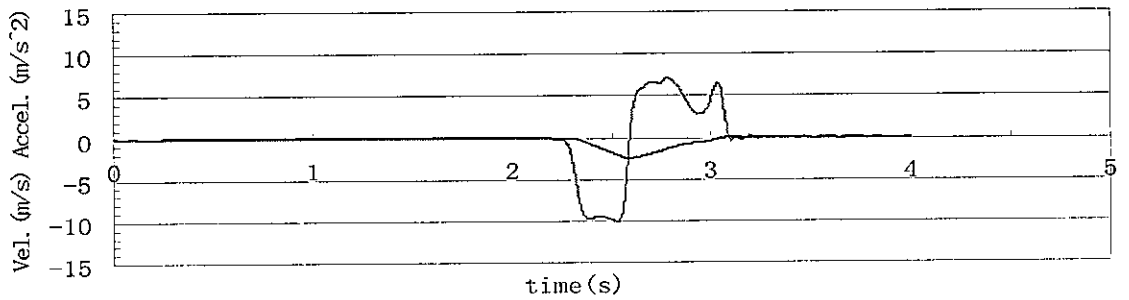
Rated speed: 1.75m/s Test total mass: 1850kg 4th (dry rails)



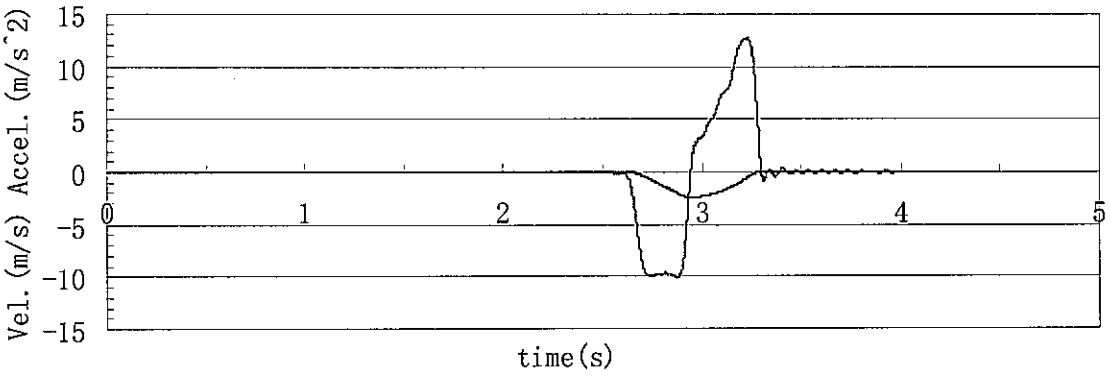
Rated speed: 0.63m/s Test total mass: 1850kg (dry rails)



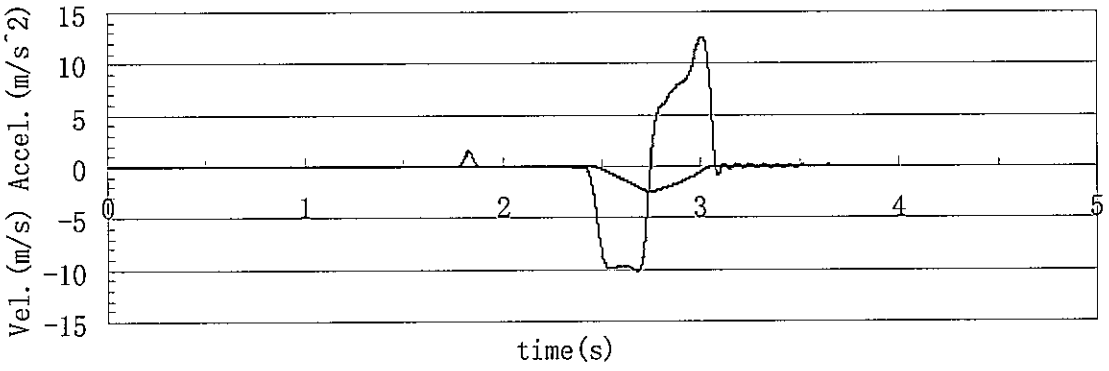
Rated speed: 1.75m/s Test total mass: 1000kg 1st (dry rails)



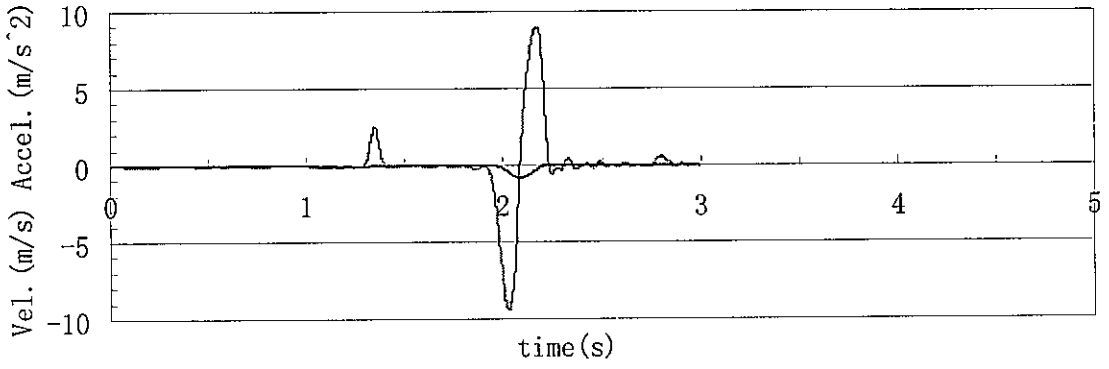
Rated speed: 1.75m/s Test total mass: 1000kg 2nd (dry rails)



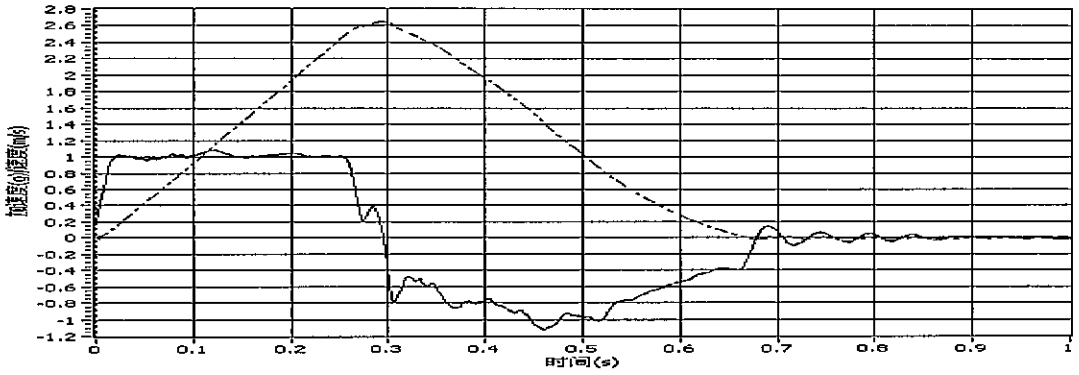
Rated speed: 1.75m/s Test total mass: 1000kg 3rd (dry rails)



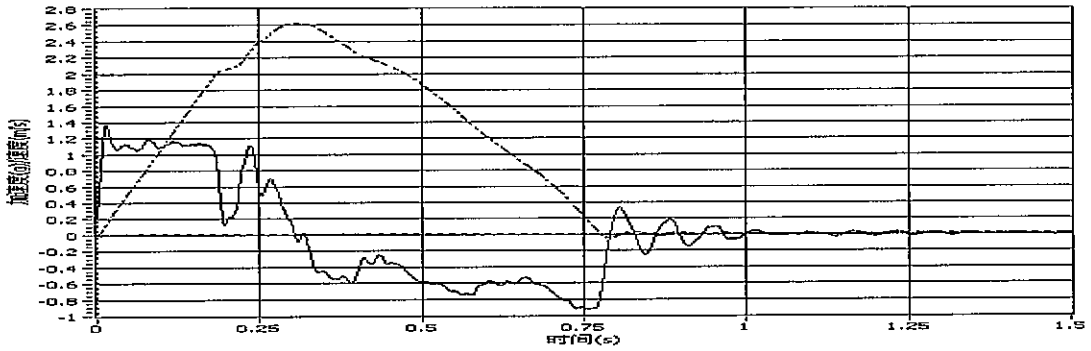
Rated speed: 1.75m/s Test total mass: 1000kg 4th (dry rails)



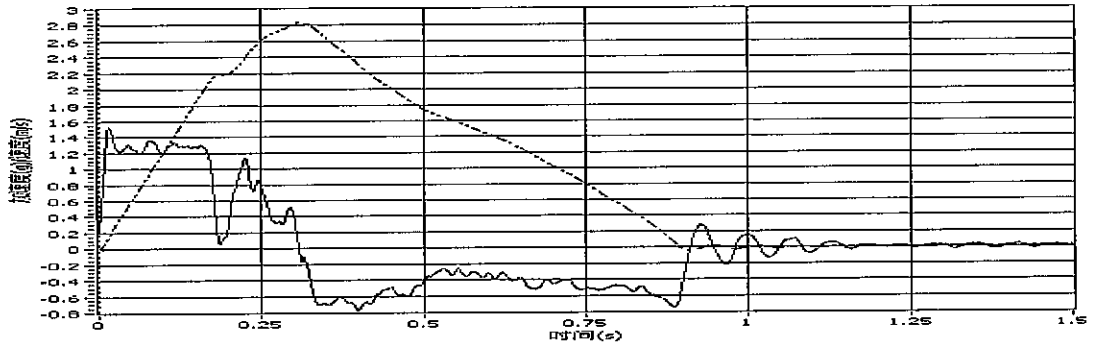
Rated speed: 0.63m/s Test total mass: 1000kg (dry rails)



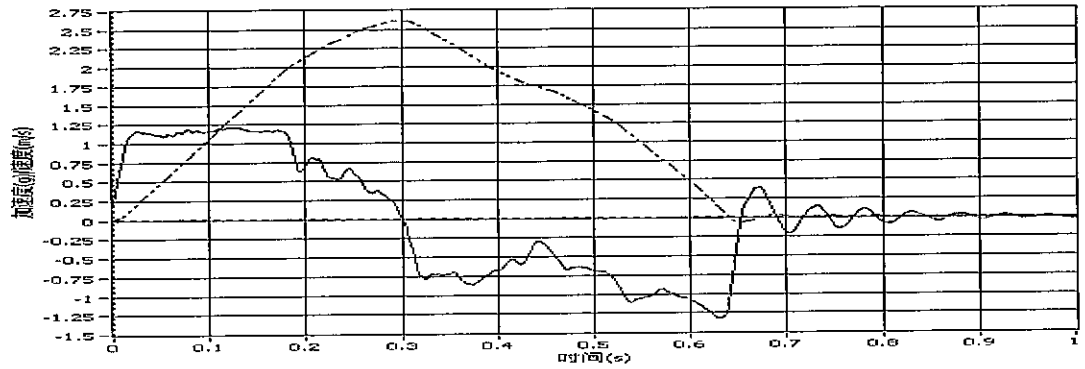
Rated speed: 1.75m/s Test total mass: 2700kg 1st (oiled rails)



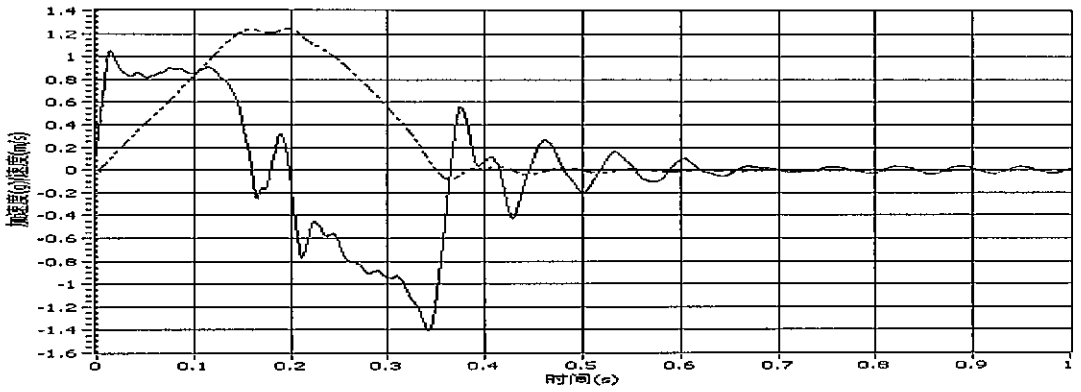
Rated speed: 1.75m/s Test total mass: 2700kg 2nd (oiled rails)



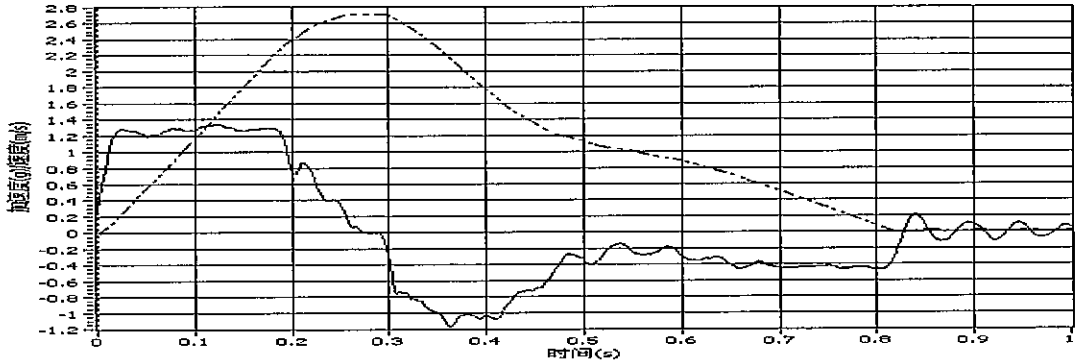
Rated speed: 1.75m/s Test total mass: 2700kg 3rd (oiled rails)



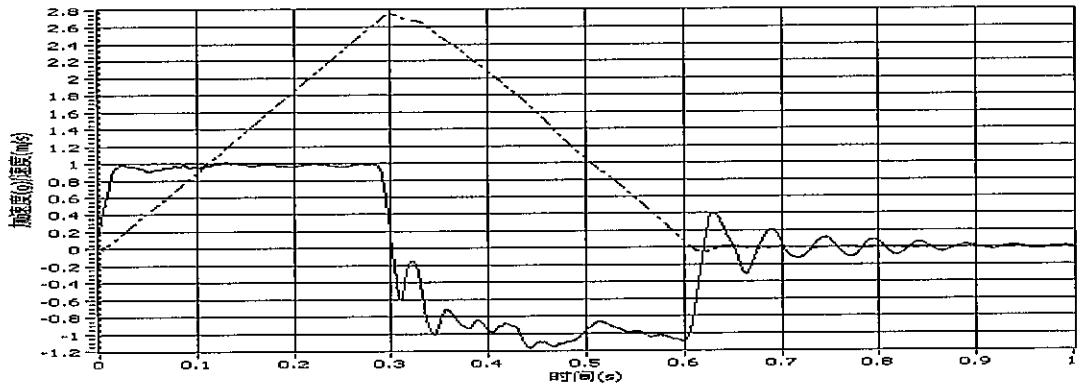
Rated speed: 1.75m/s Test total mass: 2700kg 4th (oiled rails)



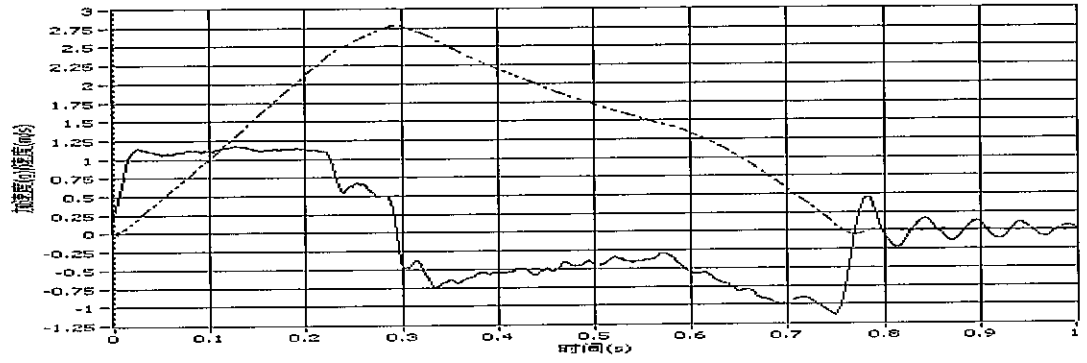
Rated speed: 0.63m/s Test total mass: 2700kg (oiled rails)



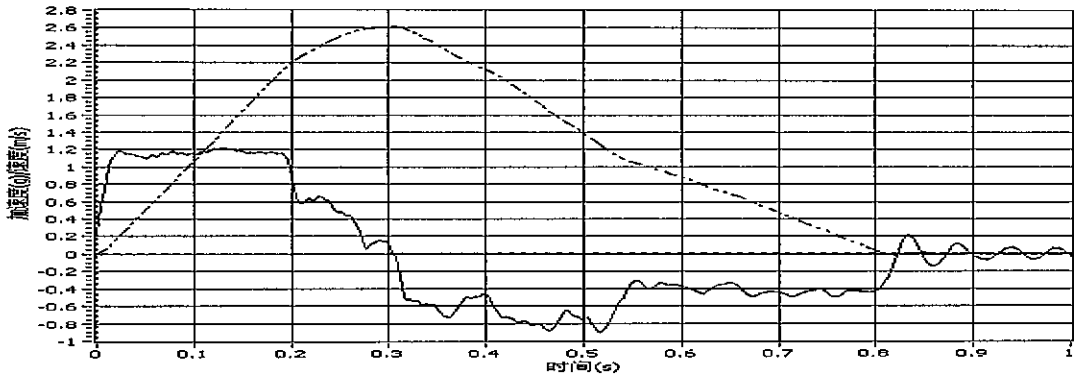
Rated speed: 1.75m/s Test total mass: 1850kg 1st (oiled rails)



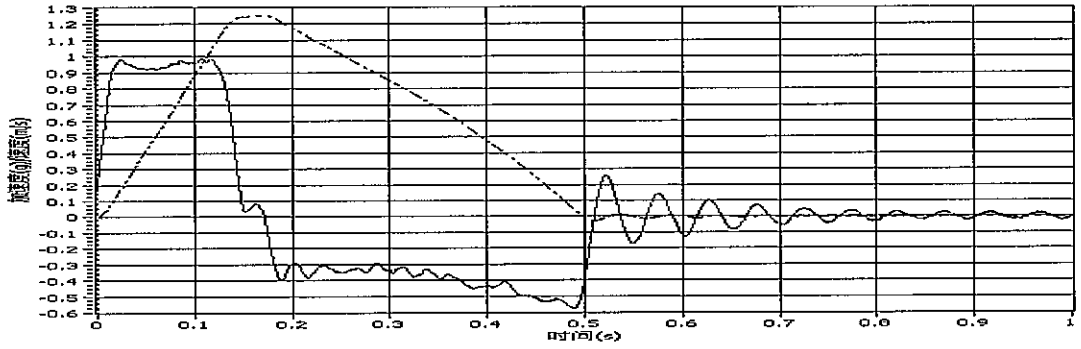
Rated speed: 1.75m/s Test total mass: 1850kg 2nd (oiled rails)



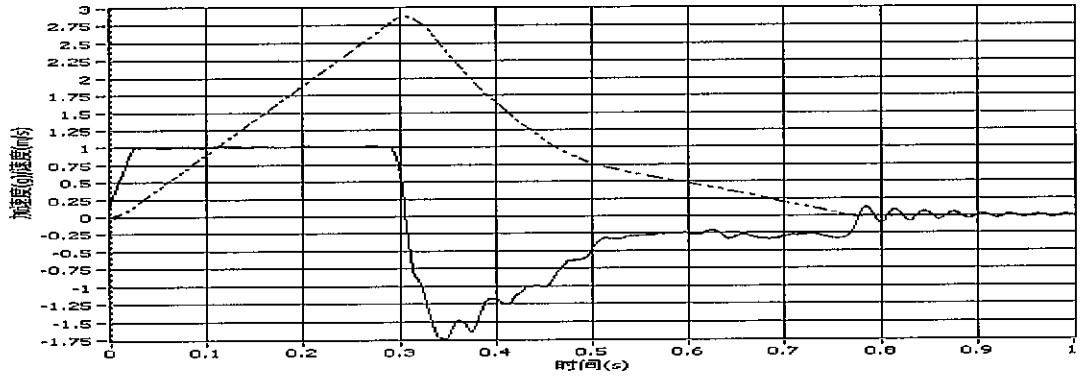
Rated speed: 1.75m/s Test total mass: 1850kg 3rd (oiled rails)



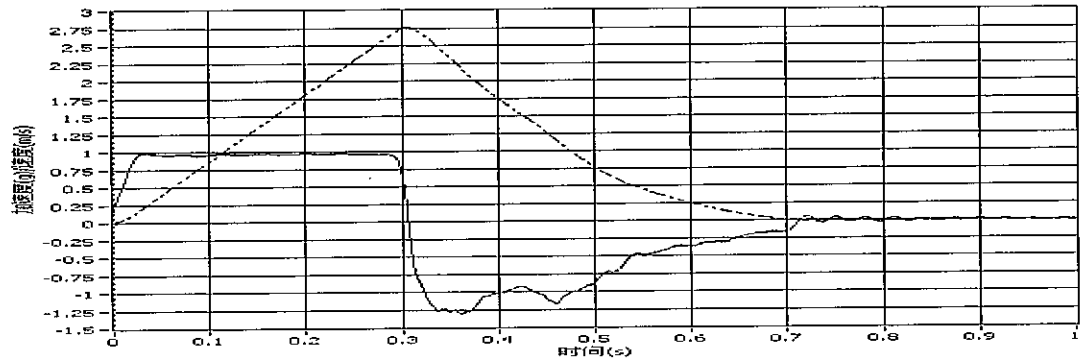
Rated speed: 1.75m/s Test total mass: 1850kg 4th (oiled rails)



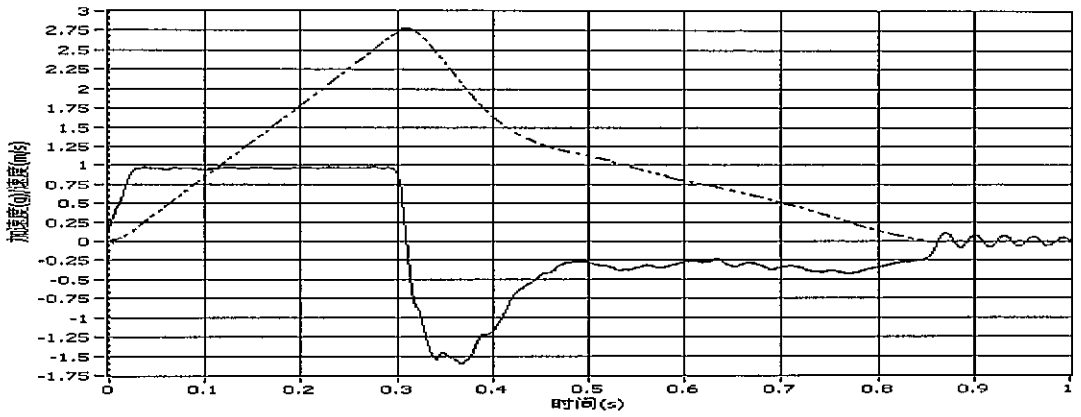
Rated speed: 0.63m/s Test total mass: 1850kg (oiled rails)



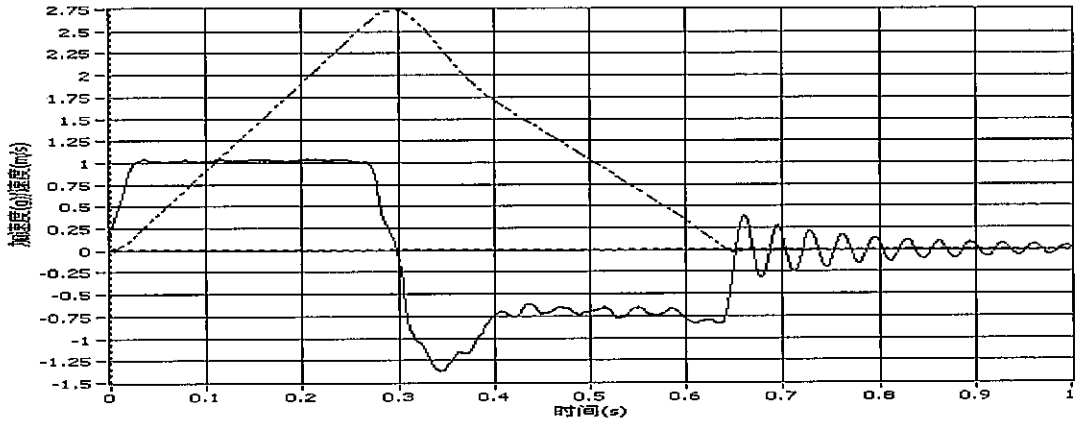
Rated speed: 1.75m/s Test total mass: 1000kg 1st (oiled rails)



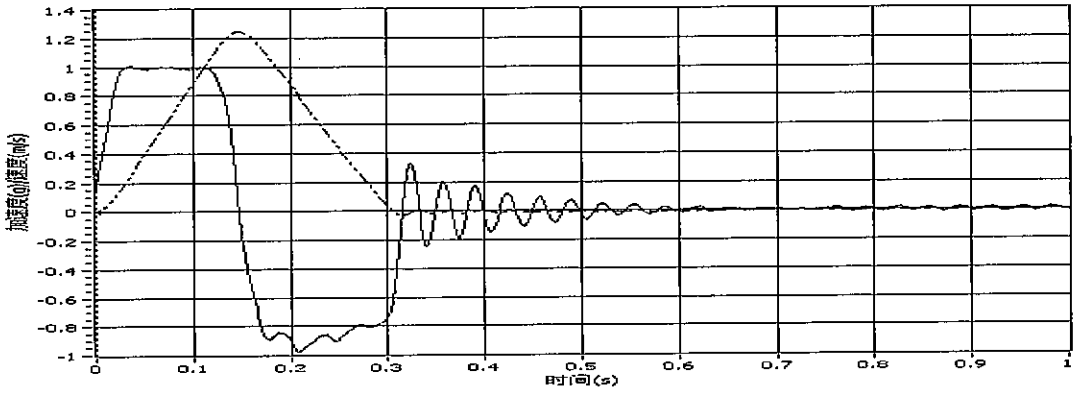
Rated speed: 1.75m/s Test total mass: 1000kg 2nd (oiled rails)



Rated speed: 1.75m/s Test total mass: 1000kg 3rd (oiled rails)



Rated speed: 1.75m/s Test total mass: 1000kg 4th (oiled rails)



Rated speed: 0.63m/s Test total mass: 1000kg (oiled rails)

检 测
CNAS L0454

2008000708Z

(2008)国认监认字(134)号

TX

Certificate of Type Test for Special Equipment

No. TX F320-003-09 0082

Applicant's name and address:	Otis Elevator Korea 74, Seongsan-dong, Changwon City, Gyeong-nam 641-714, Korea
Manufacturer's name and address:	Otis Elevator Korea 74, Seongsan-dong, Changwon City, Gyeong-nam 641-714, Korea
Name of product:	Progressive safety gear
Model and specifications:	PS35A Rated speeds: 0.63~1.75m/s Permissible masses: 1000~2700kg
Configuration of product:	/
Type test report No.:	T3-F32-09-082

This certificate is valid for products of the models and specifications below (without change of the product configuration):

Model: PS35A

Rated speeds: 0.63~1.75m/s

The limits of permissible masses are 958~3065 kg with dry rails.

The limits of permissible masses are 939~2900 kg with oiled rails.

The safety gears can be used for both car side and counterweight side.

After Type Test, this product is accord with the *Rules of Type Test of Elevators (tryout).*

电梯质量监督检验 检验报告专用章

Issue date: Mar. 3, 2010

Revision date: Sep. 7, 2010

NETEC

National Elevator Inspection and Testing Center

Note:

1. This certificate is to confirm the products on type and the tested sample on conformity, only valid for the products that are in conformance with the tested sample mentioned above.
2. The holder of this certificate has responsibilities to ensure that the products conform to the requirements of the codes and regulations, and to ensure that the products are consistent with the tested sample mentioned above.

Annex 1

Configuration of Progressive Safety Gear

No. TX F320-003-09 0082

Construction	Single-draw single -wedge		
Surface condition of the guide rails	Machined	Permissible thickness of the guide rails blade	9mm, 10mm
State of lubrication of the guide rails	Dry rails/ Oiled rails	Hardness of the guide rails	HB 105~160

Annex 2

Part numbering and permissible masses

Part numbering (right)	Part numbering (left)	permissible masses (kg)
KAA24120AAH401	KAA24120AAH402	1000~1150
KAA24120AAH403	KAA24120AAH404	1151~1300
KAA24120AAH405	KAA24120AAH406	1301~1500
KAA24120AAH407	KAA24120AAH408	1501~1700
KAA24120AAH409	KAA24120AAH410	1701~1900
KAA24120AAH411	KAA24120AAH412	1901~2100
KAA24120AAH413	KAA24120AAH414	2101~2300
KAA24120AAH415	KAA24120AAH416	2301~2500
KAA24120AAH417	KAA24120AAH418	2501~2700
KAA24120AAH421	KAA24120AAH422	1000~1150
KAA24120AAH423	KAA24120AAH424	1151~1300
KAA24120AAH425	KAA24120AAH426	1301~1500
KAA24120AAH427	KAA24120AAH428	1501~1700
KAA24120AAH429	KAA24120AAH430	1701~1900

Part numbering and permissible masses(continued)

No. TX F320-003-09 0082

Part numbering (right)	Part numbering (left)	permissible masses (kg)
KAA24120AAH431	KAA24120AAH432	1901~2100
KAA24120AAH433	KAA24120AAH434	2101~2300
KAA24120AAH435	KAA24120AAH436	2301~2500
KAA24120AAH437	KAA24120AAH438	2501~2700

Part numbering：KAA24120AAH4XX

and：K——Country code;

The first "A"—— Interchangeability Status;

The second "A"—— Serviceability Status;

24120——Progressive Safety Gear;

AAH——Model:PS35A;

4——GB code area;

XX——Odd and Even: Right & Left.

Revision notes

According to the application of *Otis Elevator Korea*, the certificate is amended with adding *the list of Part numbering and permissible masses* from Sep. 07, 2010. Original certificate without revision notes is invalid. The term of validity of the certificate is invariable from the original issue date.

Issue date: Mar. 3, 2010

Revision date: Sep. 7, 2010