Test Report No. 7191211773-MEC19-MHA
dated 18 Sep 2019
(221416677)

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PSB Singapore

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SUBJECT:

Cyclic movement endurance test on 'GW' V84 floor spring submitted by Ebcotech Machinery Sdn Bhd.

TESTED FOR:

Ebcotech Machinery Sdn Bhd
1 Jalan Gangsa SD5/3A
Bandar Sri Damansara,
52200 Kuala Lumpur
Malaysia

DATE SUBMITTED:

15-May-2019

Test duration:

06-Jun-2019 to 08-Aug-2019

METHOD OF TEST:

BS EN 1154:1997/A1:2002 - Clause 7.3 (excluding clause 7.2.2 & 7.4): Mechanical performance and durability.

The test was conducted at TÜV SÜD PSB fire test laboratory located at No. 10, Tuas Avenue 10, Singapore 639134.

TÜV SÜD PSB

ilac-MRA

Accredited Laboratory SAC-SINGLAS

LA-2007-0380-A	LA-2007-0385-E
LA-2007-0381-F	LA-2007-0386-C
LA-2007-0382-B	LA-2010-0464-D
LA-2007-0383-G	LA-2018-0702-B
LA-2007-0384-G	LA-2018-0703-G

The results reported herein have been performed in accordance with the terms of accreditation under the Singapore Accreditation Council. Inspections/Calibrations/Tests marked "Not SAC-SINGLAS Accredited" in this Report are not included in the SAC-SINGLAS Accreditation Schedule for our inspection body/laboratory.

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Co. Reg: 199002667R

Regional Head Office:
TÜV SÜD Asia Pacific Pte Ltd.
1 Science Park Drive, #02-01
Singapore 118221

DESCRIPTION OF SAMPLES:

1.0 Two pieces of floor spring were received. The following descriptions were said to be:

1.1	Brand	:	'GW' V84 with no backcheck
1.2	Overall dimension (Closer with casing)	:	310mm (L) x 110mm(W) x 42.5mm(D)
1.3	Country of origin	:	China
1.4	Permanent marking on closer body (Brand/model number/ year and week of manufacture)	:	'GW GEWALT' V84 19 03

1.5 The manufacturer's installation instruction was provided.
1.6 There is no manual hold open device.
1.7 The control regulators operated only by means of a tool.
1.8 There is no delay action function.
1.9 Free play at the zero position does not exceed 3mm.



Figure 1 – Floor Spring

RESULTS:

2.0 Measurement after 5,000 test cycles

Description		Measurements		Requirements (Size 3)
		Left	Right	
Between 0º to 4º	Closing moment	19.5	19.2	18 to < 26 Nm
	Opening moment	24.6	24.5	-
Between 88º to 92º	Closing moment	7.6	8.5	6 Nm minimum
	Opening moment	22.9	22.5	-
Min. closing torque at max. opening angle permitted by the closer	Closing moment	10.9	10.1	4 Nm minimum
Between 0º to 60º	Opening moment	26.3	26.3	47 Nm maximum
Between 0º to 4º	Efficiency	79.3	78.4	55% minimum
Closing time from 90º				
Adjustability		2.6	2.6	3 sec. or less
		> 20		20 sec. or more
Closing overload test		Yes		Able to withstand

2.1 Verification after 100,000 test cycles

Description	Measurements		Requirements (Size 3)
	Left	Right	
Backcheck	Not Applicable	Not Applicable	The test door shall stop before the 90º open position.

2.2 Measurement after 500,000 test cycles

Description		Measurements		Requirements (Size 3)
		Left	Right	
Time taken to close from 90º to fully closed position		4.8 (original value: 5.0sec)	4.8 (original value: 5.0sec)	Shall be less than 2 times or more than 0.7 times the original value. (i.e. Left: Between 3.5 and 10.0 sec) (i.e. Right: Between 3.5 and 10.0 sec)
Between 0º to 4º	Closing moment	19.6	18.8	18 to < 26 Nm
	Opening moment	23.3	23.2	-
Between 88º to 92º	Closing moment	9.5	9.4	6 Nm minimum
	Opening moment	20.0	20.1	-
Min. closing torque at max. opening angle permitted by the closer	Closing moment	12.2	13.3	4 Nm minimum
Between 0º to 60º	Opening moment	25.2	24.4	47 Nm maximum
Between 0º to 4º	Efficiency	84.1	81.0	55% minimum
Closing time from 90º				
Adjustability		2.2	2.2	3 sec. or less
		>20		20 sec. or more
Closing overload test		Yes		Able to withstand
Free play at the zero position		0.5mm	0.5mm	6mm maximum

2.3 Observations throughout test

Description	Measurements	Requirements (Size 3)
Fluid leakage	No leakage	No fluid leakage from door closer.
Damage	No damage	No damage to door closer or its arms that would adversely affect its performance.

CONCLUSION:

According to SS 332: 2007: Annex F: - Clause 5.1 - For mechanical performance and durability, the test results obtained showed that the sample tested meet the requirements and is classified as:

3	8	3	0	1	0

REMARK:

The floor spring was installed according to the installation manual for size 3.

Min Htet Aung
Higher Associate Engineer

David Ang
Product Manager
(Fire Property)
Mechanical

PSB Singapore

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July 2011