

Test Report No. 7191172726-MEC17-MHA
dated 08 Nov 2017



PSB Singapore

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SUBJECT:

Hardware test on 'Schlage' S-6800 lever handle submitted by Allegion (Hong Kong) Limited.

TESTED FOR:

Allegion (Hong Kong) Limited
77-79 Gloucester Road
29/F Fortis Tower
Wanchai, Hong Kong

DATE SUBMITTED:

07-Oct-2017

TEST DURATION:

09-Oct-2017 to 20-Oct-2017

METHOD OF TEST:

BS EN 1906 : 2012, Building hardware – Lever handles and knob furniture

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



LA-2007-0380-A
LA-2007-0381-F
LA-2007-0382-B
LA-2007-0383-G

LA-2007-0384-G
LA-2007-0385-E
LA-2007-0386-C
LA-2010-0464-D

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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Singapore 118221
TUV®



EXECUTIVE SUMMARY:

One unit of lever handle identified as 'Schlage' S-6800 were submitted for the 'EN 1906 : 2012, – Lever handles and knob furniture' test. Compliance with this European standard ensures a margin of strength in excess of that needed for normal operation.

All characteristics included in the standard for which the sponsor of test declares performances has been tested and listed under the test results. The summary of the test results is available in page three.

In accordance with the specification of the test conducted, the submitted lever handle demonstrate compliance with this European Standard, EN 1906 : 2012 and achieved a classification as follows:

Category of use	Durability	Door mass	Fire resistance	Safety	Corrosion resistance	security	Type of operation
4	7	-	0	0	0	0	B

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SUMMARY OF TEST RESULTS:

Clause No.	Description	Results
5.2	Check of spindle and fastening elements	Comply
5.4	Axial strength of lock or latch furniture and fastening elements	Comply
7.3.7	Repeat test of axial strength and methods of fastening	Comply
5.5	Free play and safety	Comply
5.6	Free angular movement or misalignment	Comply
7.3.9	Repeat measurement of free angular movement	Comply
5.7	Torque of return mechanism	Comply
7.3.10	Repeat test of torque of return mechanism	Comply
7.3.6	Durability of mechanism	Comply
7.3.8	Repeat check of free play	Comply
7.3.12	Rotational strength	Comply
8	Marking	Comply
7.4	Corrosion resistance	Not Applicable

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SAMPLE DETAILS:

Brand	Schlage
Model	S-6800
Markings in the labelling, packaging or literature	Written declaration of marking in packaging
Manufacturer	Allegion
Place of manufacture	South Korea
Material	Aluminium backplate with polycarbonate casing
Remarks	:Rubber padding at the back of both lever handle on plate : Aluminium plate at the back of the outside lever handle on plate :Hollow handle

REPORTS TO BE USED IN CONJUNCTION:

None

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INITIAL OBSERVATIONS:

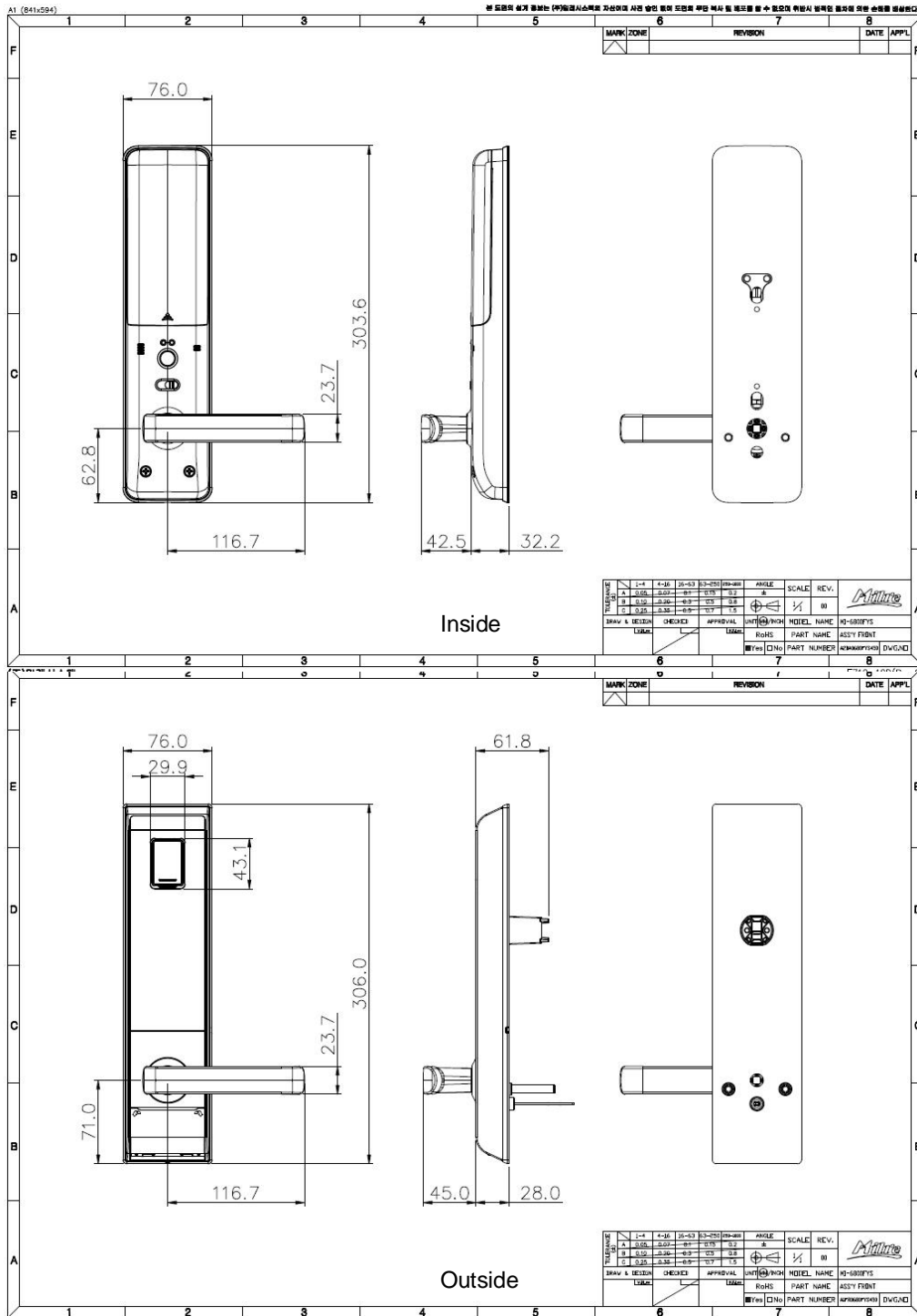
Plate 1 reflects images of tested sample.



Plate 1

Amy David

DIMENSIONED DRAWING:



All dimensions in mm
Scale: Not to Scale

Figure 1: Lever handle

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TEST RESULTS:

Check of spindle and fastening elements – clause 5.2

Descriptions	Results	Requirements
Declared door thickness	40mm to 90mm	The manufacturer should specify the door thickness or range of door thickness for which the furniture is suitable.
Angle of rotation	45°	Declared angle of rotation possible by design for spring loaded and spring assisted furniture.

**Axial strength of lock or latch furniture and fastening elements – clause 5.4 and
Repeat test of axial strength and methods of fastening – clause 7.3.7**

Descriptions	Results		Requirements
	Before durability test	After durability test	
Test force applied	1000N	1000N	Test force to be applied and maintained for 60s. <input type="checkbox"/> Grade 1 : 300N <input type="checkbox"/> Grade 2 : 500N <input type="checkbox"/> Grade 3 : 800N <input type="checkbox"/> Grade 4 : 1000N
Functionality	Comply	Comply	There shall be no failure of any component and lever handles or knob shall still operate after the test.
Deformation	0.3 mm	0.1 mm	Permanent deformation at the reference point 75mm from the axis of rotation shall not increase by more than 2mm.
Results (comply/non-compliance): Comply			

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Free play and safety – clause 5.5

Descriptions	Sample		Requirements
	At rest position	At rotated position	
Rotation of furniture	-	45°	Furniture to be rotated to a position of 60°±5° or at the maximum angle of rotation possible by design
Maximum total movement towards furniture with a 15N force applied towards the furniture	0.4 mm	0.4 mm	-
Maximum total movement away from furniture with a 15N force applied away from the furniture	0.3 mm	0.1 mm	-
Free play	Comply	Comply	The maximum total movement shall not exceed the following <input type="checkbox"/> Grades 1 and 2 ≤ 10mm <input type="checkbox"/> Grades 3 and 4 ≤ 6mm
Safety	Comply		There shall be no sharp edges, screws above backplate or rose. Fastening elements must not protrude by more than 1mm and finger trapping shall not be possible over the range of rotation
Results (comply/non-compliance): Comply			

Free angular movement or misalignment – clause 5.6 and
Repeat measurement of free angular movement – clause 7.3.9

Descriptions	Results		Requirements
	Before durability test	After durability test	
Displacement at 75mm from the axis of rotation	0.5 mm	1.0 mm	The free angular movement shall not exceed the following <input type="checkbox"/> Grades 1 and 2 ≤ 10mm <input type="checkbox"/> Grades 3 and 4 ≤ 5mm
Results (comply/non-compliance): Comply			

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**Torque of return mechanism – clause 5.7 and
Repeat test of torque of return mechanism – clause 7.3.10**

Spring-loaded type – clause 5.7.4

Descriptions	Results		Requirements
	Before durability test	After durability test	
Operating angle	45°		To have a minimum operating angle of 60° or designed angle of rotation
Torque to operate lever handle or knob to operating angle	0.4 Nm	0.4 Nm	The torque shall be no greater than below for category of use, <input type="checkbox"/> Grade 1 & 2 : 1.5Nm <input type="checkbox"/> Grade 3 & 4 : 2.4Nm
'At rest' position after removal of torque from each angle	5°	0	After removal of the torque the lever handle or knob shall return to its 'at rest' position as per category of use, <input type="checkbox"/> Grade 1 : ±4° <input type="checkbox"/> Grade 2 : ±2° <input type="checkbox"/> Grade 3&4 : ±1°
	10°	0	
	20°	0	
	30°	0	
	40°	0	
	50°	-	
	60°	-	
Results (comply/non-compliance): Comply			

Unsprung and spring assisted type – clause 5.7.2 (Not applicable)

Unsprung knobs – clause 5.7.3 (Not applicable)

Durability of mechanism – clause 7.3.6

Descriptions	Results	Requirements
Durability grade	7	<input type="checkbox"/> Grade 6 : 100 000 cycles <input type="checkbox"/> Grade 7 : 200 000 cycles
Difference in position of lever handle after durability test	0°	<input type="checkbox"/> Grade 1 : ±4° <input type="checkbox"/> Grade 2 : ±2° <input type="checkbox"/> Grade 3&4 : ±1°
Integrity after test	Comply	After the test, the handle is operable and there shall be no failure of any component.
Results (comply/non-compliance): Comply		

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Repeat check of free play – clause 7.3.8

Descriptions	Sample		Requirements
	At rest position	At rotated position	
Rotation of furniture	-	45°	Furniture to be rotated to a position of 60°±5° or at the maximum angle of rotation possible by design
Maximum total movement towards furniture with a 15N force applied towards the furniture	0.6 mm	0.4 mm	-
Maximum total movement away from furniture with a 15N force applied away from the furniture	0.2 mm	0.3 mm	-
Free play	Comply	Comply	The maximum total movement shall not exceed the following <input type="checkbox"/> Grades 1 and 2 ≤ 10mm <input type="checkbox"/> Grades 3 and 4 ≤ 6mm
Safety	Comply		There shall be no sharp edges, screws above backplate or rose. Fastening elements must not protrude by more than 1mm and finger trapping shall not be possible over the range of rotation
Results (comply/non-compliance): Comply			

Rotational strength – clause 7.3.12

Descriptions	Results	Requirements
Torque applied	60 Nm	<input type="checkbox"/> Grade 1 : 20 Nm <input type="checkbox"/> Grade 2 : 30 Nm <input type="checkbox"/> Grade 3 : 40 Nm <input type="checkbox"/> Grade 4 : 60 Nm
Torque holding time	60 sec	Torque to be maintained for 60s
Permanent deformation	4.5 mm	Permanent deformation shall be ≤5mm
Results (comply/non-compliance): Comply		

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Marking – clause 8

Descriptions	Results	Requirements
Marking in the labelling, packaging or literature	Written declaration of marking in packaging	a) Manufacturer's name or trademark or other means of positive identification b) Clear product model identification c) Number of this European Standard and classification according to clause 4 of EN 1906 d) Year and week of manufacture


Corrosion Resistance – clause 7.4

Descriptions	Results	Requirements
Corrosion resistance	Not Applicable	Test shall conform to EN 1670.

CONCLUSION:

According to EN 1906 : 2012 – Lever handles and knob furniture, the results obtained demonstrate that the specimen tested complied with the relevant clauses and is classified as follows:

Category of use	Durability	Door mass	Fire resistance	Safety	Corrosion resistance	security	Type of operation
4	7	-	0	0	0	0	B


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July 2011

