

**Test Report No. 7191172724-MEC17-MHA**  
dated 08 Nov 2017



PSB Singapore

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**SUBJECT:**

Locks and latches test on 'Schlage' S-6800 mortise lock 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:**

07-Oct-2017 to 20-Oct-2017

**METHOD OF TEST:**

EN 12209 : 2003, Building hardware – Locks and latches – Mechanically operated locks, latches and locking plates – Requirements and test methods.

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-2007-0384-G  
LA-2007-0381-F LA-2007-0385-E  
LA-2007-0382-B LA-2007-0386-C  
LA-2007-0383-G 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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**EXECUTIVE SUMMARY:**

Eight units of mortise lock identified as 'Schlage' S-6800 were submitted for the 'EN 12209 : 2003, – Mechanically operated locks, latches and locking plates' test to verify the durability, strength, security, and function of mechanically operated locks and latches and their locking plates for use in doors.

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 and four.

In accordance with the specification of the test conducted, the submitted mortise locks demonstrate compliance with this European Standard, EN 12209 : 2003 and achieved a classification as follows:

Category of use	Durability	Door mass	Fire resistance	Safety	Corrosion resistance & temperature	security	Door application	Key operation	Spindle operation	Key identification
<b>1</b>	<b>L</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>B</b>	<b>A</b>	<b>1</b>	<b>0</b>

*Ang. David*



**SUMMARY OF TEST RESULTS:**

Clause No.	Description	Results
6.7.2	Operation at extremes of temperature	Not applicable
6.3.2	Durability of deadbolt mechanism	Comply
6.12.4	Non-interpassing of keys with just one interval differ	Not applicable
6.8.2.1	Resistance to side load on deadbolt	Comply
6.8.2.2	Resistance to drilling and side load on deadbolt	Not applicable
6.9.2	Protection against removal from door	Comply
6.2.2	Torque to operate deadbolt	Comply
6.2.4	Torque resistance of Rim lock with lockable handle/knob	Not applicable
6.8.1.2	Torque resistance of knob or lever handle on rim night latch	Not applicable
6.10.1	Strength of key	Not applicable
6.10.2.1	Manual locking	Comply
6.10.2.2	Manual locking with intermediate locking position	Not applicable
6.10.2.3	Automatically locking deadbolt	Comply
6.10.2.4	Automatically locking latch bolt	Not applicable
6.8.3	Deadbolt projection	Comply
6.2.3	Strength of normal latch action and stops	Comply
7	Marking	Comply

*Amy David*



**SUMMARY OF TEST RESULTS (continued):**

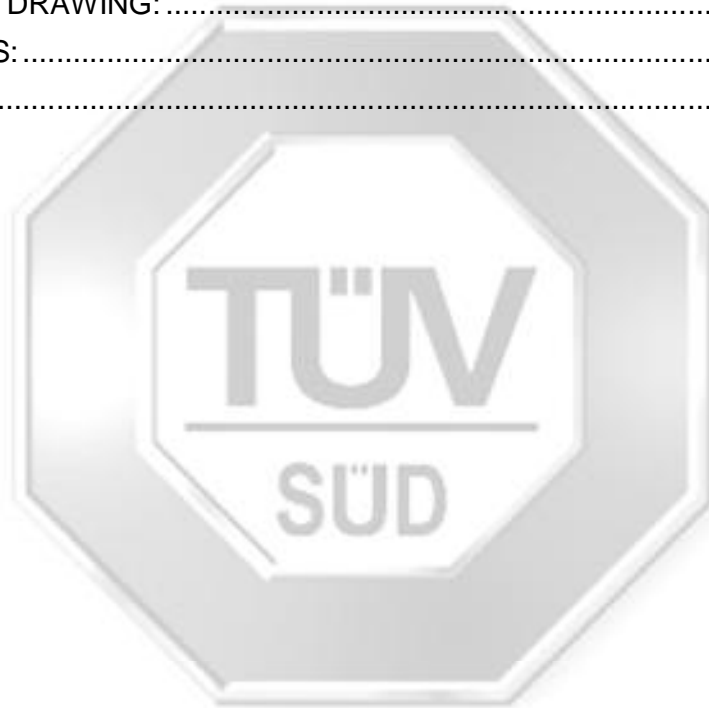
Clause No.	Description	Results
6.8.4.1	Resistance to end load	Comply
6.8.4.2	Resistance to end load with drilling	Not applicable
6.8.5	Resistance to pulling of hook/claw bolt	Not applicable
6.8.6	Resistance to disengaging of hook/claw bolt	Not applicable
6.1.2	Return force of latch bolt	Comply
6.10.3	Torque to withdraw the latch bolt with key	Not applicable
6.11.1	Torque to withdraw the latch bolt with handle	Comply
6.4.1 & 6.4.2	Door mass and closing force	Comply
6.3.3	Durability of locking snib mechanism	Not applicable
6.2.1	Resistance to side load on latch bolt	Comply
6.3.1.1 & 6.3.1.2	Durability of latch action with force applied	Comply
6.11.2	Strength of bolt actions	Comply
6.8.5 to 6.8.7	Locks with hook/claw bolts	Not applicable
6.7.1	Corrosion resistance	Not applicable
6.8.1.1	Torque resistance of knob or lever handle on bored lock and latch sets	Not applicable
6.8.8	Resistance to pulling off of knob on bored lock and latch set	Not applicable
6.11.3	Minimum follower restoring torque	Comply
6.8.9.1	Resistance to end load on box protected locking plate	Not applicable
6.8.9.2	Resistance to side load on locking plate	Comply
6.8.9.3	Resistance to pulling on locking plate	Not applicable
6.8.9.4	Resistance to lifting force on locking plate	Not applicable

*Ang David*



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*Amy David*

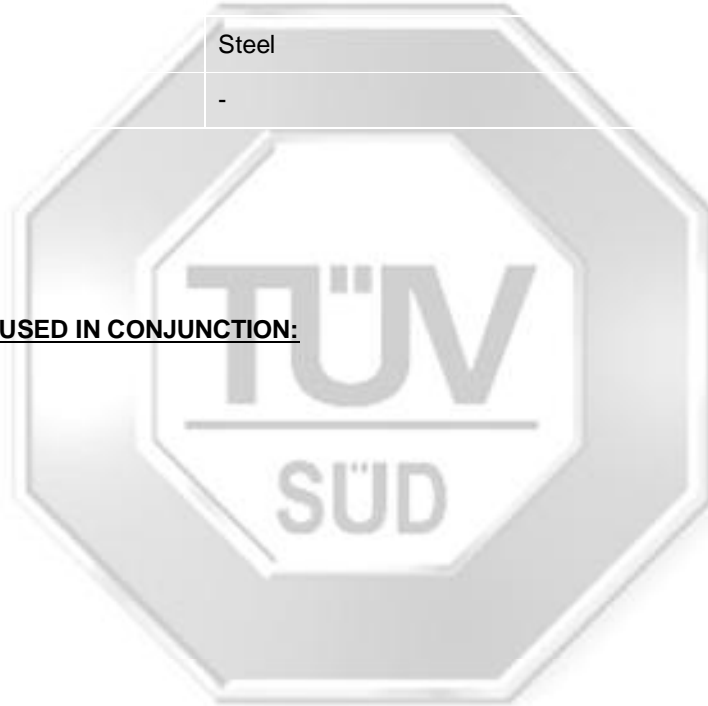


**SAMPLE DETAILS:**

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	Steel
Remarks	-

**REPORTS TO BE USED IN CONJUNCTION:**

None



*Ang. David*

**INITIAL OBSERVATIONS:**

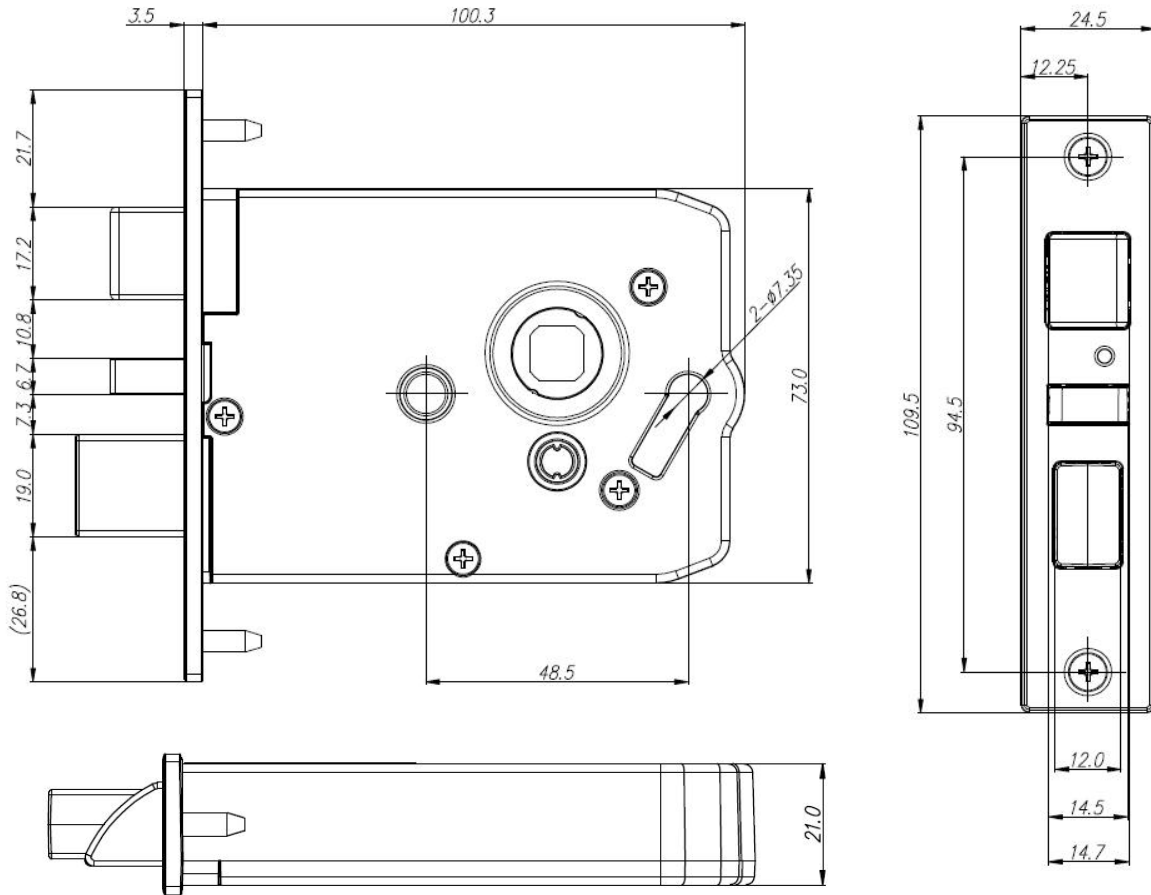
Plate 1 reflects images of received samples.



Plate 1

*Ang David*

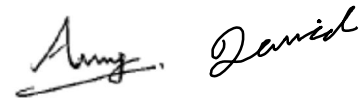
**DIMENSIONED DRAWING:**



Note: Depth of latch bolt is 14mm

All dimensions in mm  
Scale: Not to Scale

**Figure 1: Lockcase**







**TEST RESULTS:**

**Sample A & H**

**Durability of deadbolt mechanism – clause 6.3.2**

Descriptions	Sample		Requirements
	A	H	
Durability test on deadbolt, grade	L	L	Grade A & F : 10,000 cycles Grade B,G,L,R&W : 25,000 cycles Grade C,H,M,S&X : 50,000 cycles
Torque to operate deadbolt after durability test	< 0.2 Nm	< 0.2 Nm	Torque shall not exceed: <input type="checkbox"/> M3 via keyhole : 1.5Nm <input type="checkbox"/> M4 via follower : 3Nm
Results (comply/non-compliance): Compy			

**Resistance to side load on deadbolt – clause 6.8.2.1**

Descriptions	Sample		Requirements
	A	H	
Resistance to side load on deadbolt	7 kN	7 kN	The deadbolt shall resist a side load for 60s <input type="checkbox"/> Grade 1 : 1kN <input type="checkbox"/> Grade 2 : 3kN <input type="checkbox"/> Grade 3 : 5kN <input type="checkbox"/> Grade 4/5 : 7kN <input type="checkbox"/> Grade 6/7 : 10kN
Results (comply/non-compliance): Comply			

**Operation at extremes of temperature – clause 6.7.2 (NA)**

**Non-interpassing of keys with just one interval differ – clause 6.12.4 (NA)**

**Resistance to drilling and side load on deadbolt – clause 6.8.2.2 (NA)**

*Ang David*



**Sample B & J**

**Protection against removal from door – clause 6.9.2**

Descriptions	Sample		Requirements
	B	J	
Protection against dismantling	Comply	Comply	Fixings are concealed and inaccessible with the door closed.

**Torque to operate deadbolt – clause 6.2.2**

Descriptions	Sample		Requirements
	B	J	
Torque to operate deadbolt via keyhole	< 0.2 Nm	< 0.2 Nm	Torque shall not exceed: <input type="checkbox"/> M3 via keyhole : 1.5Nm <input type="checkbox"/> M4 via follower : 3Nm
Results (comply/non-compliance): Comply			

**Torque resistance of Rim lock with lockable handle/knob – clause 6.2.4 (NA)**

**Torque resistance of knob or lever handle on rim night latch – clause 6.8.1.2 (NA)**

**Strength of key – clause 6.10.1 (NA)**

*Ang David*



**Sample C & K**

**Manual locking – clause 6.10.2.1**

Descriptions	Sample		Requirements
	C	K	
Deadlocking mechanism	comply	comply	The deadbolt shall be operated from the fully unlocked to fully thrown position with a live end load on the deadbolt of 15N.

**Manual locking with intermediate locking position – clause 6.10.2.2 (NA)**

**Automatically locking latch bolt – clause 6.10.2.4 (NA)**

**Deadbolt projection – clause 6.8.3**

Descriptions	Sample		Requirements
	C	K	
Measured deadbolt projected	20.1 mm	20.2 mm	The deadbolt when fully thrown shall have a minimum projection as below: <ul style="list-style-type: none"> <li><input type="checkbox"/> Grade 1 : 10mm</li> <li><input type="checkbox"/> Grade 2 : 12mm</li> <li><input type="checkbox"/> Grade 3 : 14mm</li> <li><input type="checkbox"/> Grade 4-7 : 20mm</li> </ul>
Results (comply/non-compliance): Comply			

**Strength of normal latch action and stops – clause 6.2.3**

Descriptions	Sample		Requirements
	C	K	
Strength of follower	20Nm applied	20Nm applied	<ul style="list-style-type: none"> <li><input type="checkbox"/> Grade 1 : 20Nm</li> <li><input type="checkbox"/> Grade 2 : 40Nm</li> <li><input type="checkbox"/> Grade 3 : 60Nm</li> </ul>
Torque to withdraw latch bolt for spindle operation	0.2 Nm	0.2 Nm	The torque on follower for operation of the latch shall not exceed: <ul style="list-style-type: none"> <li><input type="checkbox"/> Grade 1 : 0.5Nm</li> <li><input type="checkbox"/> Grade 2 : 3Nm</li> <li><input type="checkbox"/> Grade 3 : 5Nm</li> </ul>
Results (comply/non-compliance): Comply			

*Ang David*



**Resistance to end load – clause 6.8.4.1**

Descriptions	Sample		Requirements
	C	K	
Load applied	4 kN	4 kN	The end load applied to the locked deadbolt <input type="checkbox"/> Grade 1 : 1kN <input type="checkbox"/> Grade 2 : 2kN <input type="checkbox"/> Grade 3 : 4kN <input type="checkbox"/> Grade 4-5 : 5kN <input type="checkbox"/> Grade 6-7 : 6kN
Resulting projection	20.0 mm	20.0 mm	Resulting projection to be at least the following, <input type="checkbox"/> Grade 1 : 8mm <input type="checkbox"/> Grade 2 : 10mm <input type="checkbox"/> Grade 3 : 11mm <input type="checkbox"/> Grade 4-7 : 17mm
Results (comply/non-compliance): Comply			

**Automatically locking deadbolt – clause 6.10.2.3 (NA)**

**Resistance to end load with drilling – clause 6.8.4.2 (NA)**

**Resistance to pulling of hook/claw bolt – clause 6.8.5 (NA)**

**Resistance to disengaging of hook/claw bolt – clause 6.8.6 (NA)**

**Sample D & L**

**Return force of latch bolt – clause 6.1.2**

Descriptions	Sample		Requirements
	D	L	
Return force of latch	2.5 N	2.6 N	The return force of the latch shall not be less than 2.5N

**Torque to withdraw the latch bolt with key – clause 6.10.3 (NA)**

*Amy*      *David*



**Torque to withdraw the latch bolt with handle – clause 6.11.1**

Descriptions	Sample		Requirements
	D	L	
Torque to withdraw latch bolt with handle	0.2 Nm	0.2 Nm	The latch bolt withdrawn torque shall not exceed, <input type="checkbox"/> Grade 1 : 0.5Nm <input type="checkbox"/> Grade 2 : 3Nm <input type="checkbox"/> Grade 3 : 5Nm <input type="checkbox"/> Grade 4 : In accordance with manufacturers specification
Results (comply/non-compliance): Comply			

**Door mass and closing force – clause 6.4.1 & 6.4.2**

Descriptions	Sample		Requirements
	D	L	
Door mass	100Kg	100Kg	<input type="checkbox"/> Grade 1,4&7 : up to 100kg door <input type="checkbox"/> Grade 2,5&8 : up to 200kg door <input type="checkbox"/> Grade 3,6&9 : above 200kg door
Average closing force	13 N	18 N	The maximum force to engage the latch to the lock plate shall be according to grade of door mass: <input type="checkbox"/> Grade 1 to 3 : 50N <input type="checkbox"/> Grade 4 to 6 : 25N <input type="checkbox"/> Grade 7 to 9 : 15N
Results (comply/non-compliance): Comply			

**Resistance to side load on latch bolt – clause 6.2.1**

Descriptions	Sample		Requirements
	D	L	
Resistance to side load on latch bolt	3 kN	3 kN	The latch action shall not be affected after the application of a side load for 60s and function correctly. <input type="checkbox"/> Grade 1 : 2kN <input type="checkbox"/> Grade 2/3 : 3kN
Results (comply/non-compliance): Comply			

*Amy David*



**Durability of latch action with force applied – clause 6.3.1.1 and 6.3.1.2**

Descriptions	Sample		Requirements
	D	L	
Durability test on latch, grade	Grade L 100,000 cycles with 25N sideload	Grade L 100,000 cycles with 25N sideload	<input type="checkbox"/> Grade A & F : 50,000 cycles <input type="checkbox"/> Grade B,G,L,R&W : 100,000 cycles <input type="checkbox"/> Grade C,H,M&S : 200,000 cycles
Average closing force after durability test	14 N	19 N	The maximum force to engage the latch to the lock plate shall be according to grade of door mass: <input type="checkbox"/> Grade 1 to 3 : 50N <input type="checkbox"/> Grade 4 to 6 : 25N <input type="checkbox"/> Grade 7 to 9 : 15N
Torque to withdraw latch bolt with handle after durability test	0.1 Nm	0.1 Nm	The torque on follower for operation of the latch shall not exceed: <input type="checkbox"/> Grade 1 : 0.5Nm <input type="checkbox"/> Grade 2 : 3Nm <input type="checkbox"/> Grade 3 : 5Nm
Results (comply/non-compliance): Comply			

**Strength of bolt actions – clause 6.11.2**

Descriptions	Sample		Requirements
	D	L	
Torque applied to deadbolt components	Not Applicable	Not Applicable	A torque of 30Nm applied in bolt throwing direction in a time of 5s.
Integrity of deadbolt mechanism after test	Not Applicable	Not Applicable	The lock shall operate correctly after this test and torque should not exceed,
Torque to operate deadbolt	Not Applicable	Not Applicable	<input type="checkbox"/> M3 via keyhole : 1.5Nm <input type="checkbox"/> M4 via follower : 3Nm
Torque applied to latch bolt components	20 Nm	20 Nm	A torque of 20Nm applied in bolt withdrawing direction in a time of 5s.
Torque to operate latch bolt	0.1 Nm	0.1 Nm	The torque on follower for operation of the latch shall not exceed: <input type="checkbox"/> Grade 1 : 0.5Nm <input type="checkbox"/> Grade 2 : 3Nm <input type="checkbox"/> Grade 3 : 5Nm
Results (comply/non-compliance): Comply			

*Ang David*



Durability of locking snib mechanism – clause 6.3.3 (NA)

Locks with hook/claw bolts (NA)

Corrosion resistance – clause 6.7.1 (NA)

Sample F & N

Minimum follower restoring torque– clause 6.11.3

Descriptions	Sample		Requirements
	F	N	
Torque exerted by spring force	< 0.1 Nm	< 0.1 Nm	Spring force to be at least the following, <input type="checkbox"/> Grade 1 : 0Nm <input type="checkbox"/> Grade 2 to 4 : 0.6Nm
Results (comply/non-compliance): Comply			

Torque resistance of knob or lever handle on bored lock and latch sets – clause 6.8.1.1 (NA)

Resistance to pulling off of knob on bored lock and latch set – clause 6.8.8 (NA)

Locking plate sample A & D

Descriptions	Plate sample		Requirements
	A	D	
Side load applied	3 kN	3 kN	A side load F4 to be applied to the bolt aperture for 60s, <input type="checkbox"/> Grade 1 : 1kN <input type="checkbox"/> Grade 2 : 3kN <input type="checkbox"/> Grade 3 : 5kN <input type="checkbox"/> Grade 4/5 : 7kN <input type="checkbox"/> Grade 6/7 : 10kN
Integrity of locking plate	Comply	Comply	The product to remain fully functional both during and after the test without plastic deformation outside the tolerance taking place.
Protection against dismantling	Comply	Comply	All fixings to be assessed whether they are concealed and inaccessible with the door closed and attempt to remove the fixings that are exposed using the specified tools.
Results (comply/non-compliance): Comply			

*Amy David*



Resistance to end load on box protected locking plate – clause 6.8.9.1 (NA)

Resistance to pulling on locking plate – clause 6.8.9.3 (NA)

Resistance to lifting force on locking plate – clause 6.8.9.4 (NA)

**Marking – clause 7**

Descriptions	Results	Requirements
Declaration of 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) Classification according to clause 4 of EN12209 d) Number of year of the tested European standard

**CONCLUSION:**

According to EN 12209 : 2003, Building hardware – Locks and latches – Mechanically operated locks, latches and locking plates, 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 & temperature	security	Door application	Key operation	Spindle operation	Key identification
1	L	4	0	0	0	1	B	A	1	0

  
Aung Min Htet  
Higher Associate Engineer

  
David Ang  
Product Manager  
(Fire Property)  
Mechanical





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July 2011

