

Allegion Security Technologies (China) Co., Ltd.

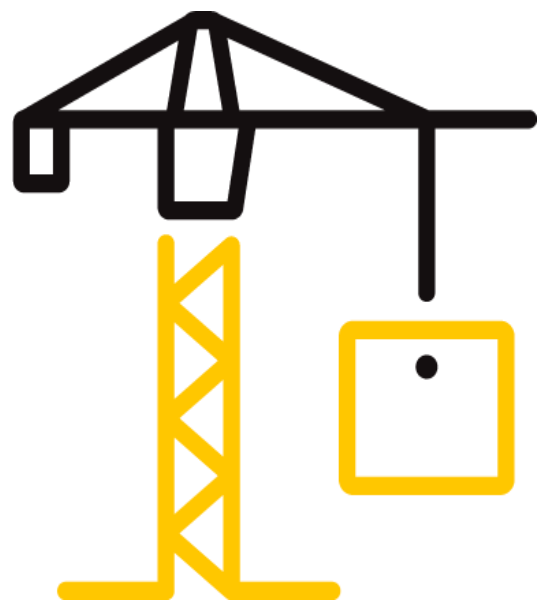
TEST REPORT

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190726006SHF-001

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2019/8/5

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11

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Test Report

Issue Date: 2019/8/5 Intertek Report No. 190726006SHF-001

Applicant: Allegion Security Technologies (China) Co., Ltd.

Applicant Address: Building 10, No. 8158, Tingwei Road, Jinshan Industry Park, Shanghai, P.R.China

Attn: Joe ZHU

SUBJECT: Performance test
Controlled door closing devices

Brand name: Briton

Dear Sir,

This test report for represents the results of our evaluation of the above referenced product(s) to the requirements contained in the following standards:

TEST METHODS AND STANDARDS	
Refer to the next following Pages.	

SAMPLE ID	MODEL	SPECIFICATION
S190121011SHF.001~003	C2800	EN3, concealed door closer, track arm.

SAMPLE RECEIEVED: 2019/1/19
TESTED FROM: 2019/1/28 TO 2019/4/7

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Testing and Product information:

Testing information	
Standard:	EN 1154:1996/A1:2002/AC:2006
Rating(s):	3 8 3 — 1 4
Testing Laboratory name:	Intertek Testing Services Shanghai Ltd.
Address:	Plant 5, No 6958 Daye Road Fengxian District, Shanghai, China 201405
Possible Test Case Verdicts	
Test Case does not apply to the Test object:	N/A
Test object does meet the requirement:	P (Pass)
Test object does not meet the requirement:	F (Fail)
Conclusion:	
The submitted samples COMPLIED WITH all applicable mechanical performance requirements of EN 1154:1996/A1:2002/AC:2006 for the ratings.	
* When determining the test result, measurement uncertainty has been considered.	

General product information:

The product detail information list on the following form							
Model C2800, Performance and durability tests base on concealed installation (concealed installation required by client).							
Model No.	Product type	Power size	Speed control	Latch control	Hold open	Back check	Delay closing
C2800	Door closer	3	Yes	Yes	No	No	No

Detail "Ratings" information listed as following:			
First digit (Category of use):	Grade	3	— For closing doors from at least 105° open
Second digit (Durability):	Grade	8	— 500 000 test cycles;
Third digit (Door closer power size):	Grade	3	— Power size 3
Fourth digit (suitability for use on fire/smoke doors):	Grade	—	— No performance determined.
Fifth digit (Safety):	Grade	1	— All door closers are required to satisfy the essential requirement of safety in use;
Sixth digit (Corrosion resistance):	Grade	4	— Very high resistance

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Test Items, Method and Results:

EN 1154:1996/A1:2002/AC:2006 Building hardware- Controlled door closing devices -Requirements and test methods							
Clause	Requirement - Test			Result - Remark		Verdict	
4	Classification						
4.1	Door closer shall be classified by six digit coding system:						
4.2	Category of use (1 st) :			Grade 3		--	
4.3	Durability (2 nd) :			Grade 8		--	
4.4	Door closer power size (3 rd)			Grade 3		--	
4.5	Suitability for use on fire/smoke doors (4 th)			Grade —		--	
4.6	Safety (5 th)			Grade 1		--	
4.7	Corrosion resistance (6 th)			Grade 4		--	
5	REQUIREMENTS						
5.1	<p>"Product information A door closer manufactured to this standard shall be supplied with clear, detailed instructions for its installation, regulation and maintenance, which shall include any limitations of opening angle. Where a door closer is recommended for fitting in other than a standard application, these instructions shall clearly define the door closer power size for each application of fitting position stated."</p>			<p>Supplied with clear, detailed instructions. Power size: 3</p>		P	
5.2	Performance						
	Table 1						
	Door closer Power size	Closing moment				Opening moment 0° to 60°	Door closer efficiency 0° to 4°
		0° to 4°		88° to 92°	Any other angle		
		Nm min.	Nm max	Nm min.	Nm min.		
	1	9	< 13	3	2	26	50
	2	13	< 18	4	3	36	50
	3	18	< 26	6	4	47	55
	4	26	< 37	9	6	62	60
5	37	< 54	12	8	83	65	
6	54	< 87	18	11	134	65	
7	87	< 140	29	18	215	65	

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5.2.1	<p>General</p> <p>When tested in accordance with clauses 6 and 7, the door closer shall satisfy the relevant performance requirements of 5.2.2 to 5.2.11, and 5.2.12 to 5.2.18 as appropriate</p>	See below clauses	—
5.2.2	<p>Durability</p> <p>The door closer shall be able to close a test door conforming to 6.1.1 and 6.2 from an opening angle of 90°, for a minimum of 500,000 test cycles :</p>	500,000 cycles	P
5.2.3	<p>Closing moment</p> <p>After 5000 test cycles and after 500,000 test cycles the measured closing moments shall be not less than the value stated in Table 1 :</p>	<p>Power size: 3</p> <p>After 5 000 cycles</p> <p>0° ~ 4°: 20,7 Nm</p> <p>88° ~ 92°: 16,5 Nm</p> <p>0° ~ 180°: 13,7 Nm</p> <p>after 500 000 cycles</p> <p>0° ~ 4°: 18,1 Nm</p> <p>88° ~ 92°: 15,4 Nm</p> <p>0° ~ 180°: 12,9 Nm</p>	P
5.2.4	<p>Opening moment</p> <p>After 5 000 test cycles the maximum measured opening moment shall be not more than the value stated in Table 1 for the particular power size of closer being tested. :</p>	<p>Power size: 3</p> <p>0° ~ 60°: 39,6 Nm</p>	P
5.2.5	<p>Efficiency</p> <p>After 5000 test cycles and after 500,000 test cycles the measured efficiency shall be not less than value stated in Table 1 :</p>	<p>Power size: 3</p> <p>After 5000 cycles</p> <p>77,8 %</p> <p>after 500,000 cycles</p> <p>79,7 %</p>	P
5.2.6	<p>Closing time</p> <p>After 5000 test cycles and after 500,000 test cycles, the closing time, from a door opening angle of 90 degree, shall be capable of adjustment to 3 seconds or less, and 20 seconds or more. After 500,000 test cycles, the closing time set at 5000 test cycles shall not have increased by more than 100%, or decreased by more than 30 % :</p>	<p>After 5000 cycles</p> <p>The range of closing time:</p> <p>Minimum 2,19 s</p> <p>Maximum 134,42 s</p> <p>Set closing time: 3,72 s</p> <p>After 500,000 test cycles</p> <p>The range of closing time:</p> <p>Minimum 2,44 s</p> <p>Maximum 162,13 s</p> <p>Closing time: 3,34 s</p> <p>Not decrease more than 30%</p>	P

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5.2.7	Angles of operation The door closer shall permit the test door to open according to its grade, and on closing, shall control the door from a minimum angle of 70 degree :	After 5000 test cycles Max. opening angle: 105° The controlled angle: 97° After 500,000 test cycles Max. opening angle: 105° The controlled angle: 92°	P
5.2.8	Overload performance The door closer shall be capable of withstanding the closing overload tests :	After 5000 and 500, 000 test cycles Power size: 3 Overload weight: 21 kg No any defects, function normally after 10 times overload test.	P
5.2.9	Temperature dependence A set closing time of 5 seconds at an ambient temperature of 20 degree C, shall not increase to more than 25 seconds or decrease to less than 3 seconds when tested at -15 degree C and 40 degree C :	Closing time at 20°C: 4,93 s Closing time at -15°C: 5,23 s Closing time at 40°C: 4,30 s	P
5.2.10	Fluid leakage Throughout the test programme there shall be no leakage of fluid from the door closer :	Not found any fluid leakage throughout the test	P
5.2.11	Damage Throughout the test programme there shall be no damage to the door closer or its arms that would adversely affect its performance to this standard :	Not found any damage throughout the test	P
5.2.12	Latch control (optional) Accelerated closing shall be effective over a maximum range of 15 degree from the closed position, and shall be adjustable :	Latch control was adjustable, maximum control angle: 6°	P
5.2.13	Backcheck (optional) The door closer shall be capable of arresting the test door before 90 degree position :	Without a backcheck function.	N/A

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5.2.14	<p>Delay closing (optional) The delay time shall not be less than 20 seconds. The delay zone shall not extend below the 65 degree open position. The moment required to override manually the delay action shall not exceed 150 Nm. The delay time at the conclusion of 500 test cycles shall be between 10 seconds to 30 seconds :</p>	Without a delayed closing function.	N/A
5.2.15	<p>Adjustable closing force (optional) If provided with an adjustable closing function, the door closer shall comply with the performance at both the minimum and maximum power settings claimed by manufacture :</p>	Fixed power size	N/A
5.2.16	<p>Zero position (for double action door closers only) The amount of free play at the zero position of a new door closer shall not exceed 3 mm, and after 500,000 test cycles shall not exceed 6 mm :</p>	Not applicable for door closer.	N/A
5.2.17	<p>Corrosion resistance The requirement shall be according to EN 1670. The closing moment of the door closer shall be not less than 80% of the closing moment measured prior to the test. The acceptance conditions of EN 1670 shall be met for all surfaces of the door closer which are visible :</p>	<p>Before salt spray test 0° ~ 4°: 19,2 Nm 88° ~ 92°: 20,2 Nm 0° ~ 180°: 16,1 Nm Corrosion resistance grade: 4 Salt spray time: 240 hours Not found any rust or blister on the visible surface After salt spray test 0° ~ 4°: 18,3 Nm 88° ~ 92°: 16,5 Nm 0° ~ 180°: 14,0 Nm Not less than 80%</p>	P

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5.2.18	Fire/smoke door suitability A door closer for use on a fire/smoke door assembly shall meet the necessary requirements of Annex A :	No performance determined.	—
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Appendix A: Product Documents

Model No.	Document Ref.	Document Title	Issue	Date
C2800	Exploded Drawing	Exploded Drawing	20190625	20190702
C2800	BOM list	BOM list	20190625	20190702
C2800	Body Dimension Drawing	Body Dimension Drawing	20190625	20190702
C2800	C2800 Installation Instruction	Instruction	20190731	20190731

Note:

It is a mandatory requirement that Intertek is informed of any modifications or changes to the following:

- Product submitted for approval or that has been approved
- Manufacturing process
- Manufacturing address
- Materials
- Materials supplier
- Documents recorded within this register

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Testing Photos:



Section view (afte 240h salt spray test)



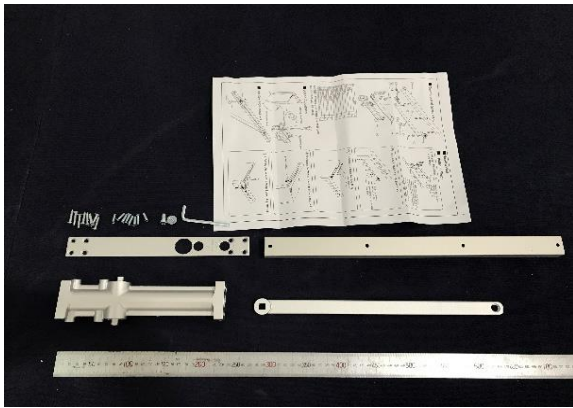
Front view (afte 240h salt spray test)

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APPENDIX: SAMPLE RECEIVED PHOTO



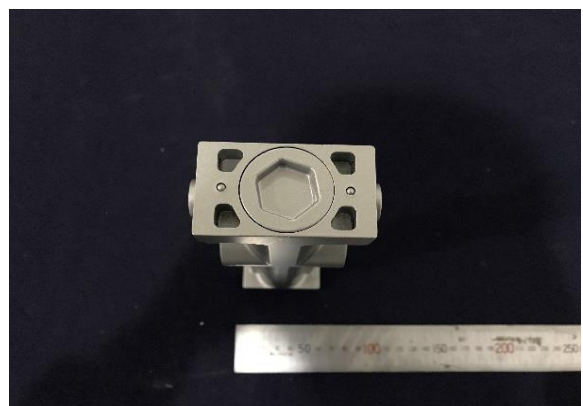
Front view



Back view



Section view



Section view

REPORT AUTHORIZED

When signed with physical or electronic signature, the contents of this report have been prepared and approved per Intertek's quality process in accordance with ISO 17025.



Jodie Zhou *Torres Qi*

Name: Jodie Zhou

Name: Torres Qi

Title: Approver

Title: Project Engineer

Revision:

NO.	DATE	CHANGES	AUTHOR	REVIEWER
190726006SHF-001	2019/8/5	First issue	Torres Qi	Jodie Zhou