



Door hardware assessment

Test standard: Section 2 and appendix B11 of AS 1530.4:2014

Report sponsor: Sieper Group and Firecore Pty Ltd

Products: LOCKTON 190 and 195 series door closers

Report number: 34841900a Reference number: FAS200438

Revision: DHAR5.0

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1. Introduction

This report documents the findings of the assessment undertaken to determine the likely fire resistance level (FRL) of a Firecore doorset fitted with a LOCKTON door closer with track arm, if tested in accordance with section 2 and appendix B11 of AS 1530.4:2014.

Warringtonfire did this assessment at the request of the test sponsors listed in Table 1.

Table 1 Test sponsor details

Test sponsor	Address
Firecore Pty Ltd	291 Warringah Road Beacon Hill NSW 2100 Australia
Sieper Group	101-109 Deakin Street Silverwater, NSW 2128 Australia

2. Variations considered in this report

The variations considered in this report are fitting the following LOCKTON door closers with track arm instead of the door closer tested in the reference tests reports listed in Table 2.

- SGDC190S-G
- SGDC190S-B
- SGDC195S-G
- SGDC195S-B

Table 3 provides additional supporting information about the doorset.

Table 2 Referenced test reports

Test reference	Doorset description	Test standard
FSV 1382a	Single leaf TVC30 core Firecore doorset, nominally 38 mm thick.	AS 1530.4:2005
FSV 1418a	Single leaf TVC40 core Firecore doorset, nominally 48 mm thick.	AS 1530.4:2005
FSV 1391a	Double leaf TVC40 core Firecore doorset, nominally 48 mm thick.	AS 1530.4:2005

Table 3 Additional supporting information

Test report	Doorset description	Test duration	Test standard
EWFA 34841900	Single leaf TVC30 core Firecore doorset, nominally 38 mm thick.	120 minutes	AS 1530.4:2005
A pilot scale fire resistance test – in accordance with section 2 and appendix B11 of AS 1530.4:2005 – was done on a pilot scale doorset on 15 June 2020. It included a LOCKTON SGDC 195S-G CAM Action door closer with track arm fitted to the door leaf.			

3. Description of the tested door hardware

Table 4 describes the tested door hardware specimen. This information was provided by the test sponsor and surveyed by Warringtonfire.

Table 5 describes the pre-test functionality test done on the door system.

Photograph of the test specimen is included in Figure 1.

All measurements were done by Warringtonfire – unless indicated otherwise.

Table 4 Specimen description

Item	Description
Door hardware product name	LOCKTON SGDC 195S-G CAM Action door closer with track arm
Door system properties	
Door leaf thickness	38 mm
Location of the closer	Unexposed side, 45 mm from the top edge and 45 mm from the hinge edge

Table 5 Specimen functionality test

Item	Description	
Opening and closing cycles	The doors were subjected to a series of 50 opening and closing cycles of at least 75° for side-hung doorsets and at least 300 mm for sliding doorsets and shutters – in accordance with clause 7.2.5 of AS 1530.4:2005.	
Average clearance measurement	Top edge	2.1 mm
	Latch edge	1.9 mm
	Hinge edge	1.6 mm



Figure 1 Unexposed view of the tested hardware

4. Discussion

In relation to fire doors, section 4.5 of AS 1905.1:2015 requires some variations from tested prototypes to be subjected to a pilot test. Appendix B11 of AS 1530.4:2014 specifies suitable procedures for undertaking a pilot test for fire doors.

It is expected if the LOCKTON SGDC 195S-G CAM Action door closer with track arm does not initiate failure of the pilot doorset before failure occurred on the referenced doorsets, then substituting the proposed door closer with the one tested on the reference doorsets will not be detrimental to the performance of the reference doorsets.

The pilot scale fire resistance test EWFA 34841900 were conducted in accordance with AS 1530.4:2005. The furnace heating regime and the parameters outlining the accuracy of control of the furnace temperature, failure criteria for insulation and integrity in AS 1530.4:2014 and AS 1530.4:2005 are not appreciably different.

AS 1530.4:2014 states that either sustained flaming on the surface of the unexposed face for 10 seconds or longer, ignition of the cotton, or the latching mechanism being disengaged at the end of the test constitutes integrity failure. During the reference test – EWFA 34841900 – the LOCKTON

SGDC 195S CAM Action door closer with track arm did not initiate failure of the doorset for the duration of the test.

The manufacturer has confirmed that the additional door closers (SGDC190S-G, SGDC190S-B and SGDC195S-B) are manufactured from the same materials, use the same internal operating mechanism, are equal or smaller size, are mounted in a similar position (with respect to distance away from hinge stile – not to be less than 110 mm) as per the tested SGDC195S-G closer.

5. Conclusion

It is the opinion of Warringtonfire's accredited fire testing laboratory in Australia that the doorsets listed in Table 6 will achieve the FRL shown in Table 6 if they are fitted with the LOCKTON door closers listed in section 2 on the doorset. This opinion is based on the pilot scale test done.

This assessment report has been prepared in accordance with section 4.5 of AS 1905.1:2015 and is conditional on the operational characteristics and materials of the doorset complying with section 2 of AS 1905.1:2015. The field of application for the door closer is the same as the field of application for the doorset that the door closer is installed on.

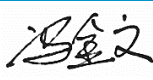


Table 6 Conclusion

Test reference	Description	FRL
FSV 1382a	A LOCKTON SGDC door closer listed in section 2 fitted to a single leaf TVC30 core Firecore doorset, nominally 38 mm thick.	-/120/30
FSV 1418a	A LOCKTON SGDC door closer listed in section 2 fitted to a single leaf TVC40 core Firecore doorset, nominally 48 mm thick.	-/120/30
FSV 1391a	A LOCKTON SGDC door closer listed in section 2 fitted to a double leaf TVC40 core Firecore doorset, nominally 48 mm thick.	-/120/30

Conditions and validity

- The conclusions of this assessment may be used to directly assess the fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.
- Because of the nature of fire resistance testing, and the consequent difficulty in quantifying the uncertainty of measurement, it is not possible to provide a stated degree of accuracy of the result. The inherent variability in test procedures, materials and methods of construction, and installation may lead to variations in performance between elements of similar construction.
- The assessment can therefore only relate to the actual prototype test specimens, testing conditions and methodology described in the supporting data, and does not imply any performance abilities of constructions of subsequent manufacture.
- This assessment is based on information and experience available at the time of preparing this report. The published procedures for the conduct of tests and the assessment of the test results are the subject of constant review and improvement and it is recommended that this report be reviewed by Warringtonfire before the end of the validity date.
- The information in this report must not be used for the assessment of variations other than those stated in the conclusions above. The assessment is valid provided no modifications are made to the systems detailed in this report. All details of construction should be consistent with the requirements stated in the relevant test reports and all referenced documents.
- The data, methodologies, calculations and results documented in this report specifically relate to the tested specimen/s and must not be used for any other purpose. This report may only be reproduced in full. Extracts or abridgements must not be published without permission from Warringtonfire.
- All work and services carried out by Warringtonfire are subject to and conducted in accordance with our standard terms and conditions. These are available on request or at <https://www.element.com/terms/terms-and-conditions>.

Quality management

Revision	Date	Expiry date	Information about the report			
DHAR 34841900a.1	19 June 2015	19 June 2020	Description	Initial issue		
			Name	Prepared by Patrick Chan	Reviewed by Chad McLean	
DHAR 34841900a.2	4 August 2015	19 June 2020	Description	Report updated to specify the door closer name.		
			Name	Prepared by Patrick Chan	Reviewed by Chad McLean	
DHAR 34841900a.4	30 May 2016	19 June 2020	Description	Report updated to address sponsor's comments.		
			Name	Prepared by D. Nicholson	Reviewed by K. Nicholls	
DHAR5.0	26 November 2020	30 November 2025	Description	Revalidation and extending the expiry date for 5 years.		
			Name	Prepared by Kevin Feng	Reviewed by Yomal Dias	Authorised by Mahmoud Akl
			Signature			

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Door hardware assessment

Test standard: Section 2 and appendix B11 of AS 1530.4:2014

Report sponsors: Sieper Group and E Plus Building Products Pty Ltd

Products: Lockton SGDC 195S-B door closer

Report number: 42205600-D Revision: DHAR2.0

Reference number: FAS210360

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1. Introduction

This report documents the findings of the assessment to determine the likely fire resistance level (FRL) of a E-core maxi door fitted with a Lockton SGDC 195S-B surface mounted cam action door closer tested in accordance with section 2 and appendix B11 of AS 1530.4:2014.

Warringtonfire performed this assessment at the request of the test sponsors listed in Table 1.

Table 1 Test sponsor details

Test sponsor	Address
E Plus Building Products Pty Ltd	12-13 Dansu Court Hallam VIC 3803 Australia
Sieper Group	101 – 109 Deakin Street Silverwater NSW 2128 Australia

2. Variations considered in this report

The variations considered in this report are:

Fitting a Lockton SGDC 195S-B surface mounted cam action door closer instead of the door closer tested in the referenced test reports listed in Table 2. Table 3 provides additional supporting information about the doorset.

Table 2 Referenced test reports

Test reference	Doorset description	Test standard
FSV 0609	Single leaf plywood faced E-core doorset, nominally 45 mm thick.	AS 1530.4:1997
SI 2271	Two leaf plywood faced E-core doorset, nominally 45 mm thick.	AS 1530.4:1985

Table 3 Additional supporting information

Test report	Doorset description	Test duration	Test standard
EWFA 42205600	Single leaf plywood faced E-core doorset, nominally 45 mm thick.	121 minutes	AS 1530.4:2014
A full-scale fire resistance test – in accordance with section 2 and appendix B11 of AS 1530.4:2014 – was done on a full scale doorset on 29 July 2016. It included a Lockton SGDC 195S-B surface mounted cam action door closer fitted to the door leaf. The doorset was tested with the door opening away from the furnace.			

3. Description of the tested door hardware

Table 4 describes the tested door hardware specimen. This information was provided by the test sponsor and surveyed by Warringtonfire.

Table 5 describes the pre-test functionality test done on the door system. Photographs of the test specimen are included in Figure 1 to Figure 3. All measurements were done by Warringtonfire – unless indicated otherwise.

Table 4 Specimen description

Item	Description
Door hardware product name	Lockton SGDC 195S-B surface mounted cam action door closer
Door system properties	
Door leaf thickness	47 mm
Location of the door closer	6 mm between the top edge of the frame and top surface of the closer

Item	Description
	95 mm between the hinge edge of the frame and centre of the closer
Closer configuration	Closer was installed on the unexposed side with door opening out of the furnace

Table 5 Specimen functionality test

Item	Description								
Opening and closing cycles	The doors were subjected to a series of 50 opening and closing cycles of at least 75° for side-hung doorsets and at least 300 mm for sliding doorsets and shutters – in accordance with clause 7.2.5 of AS 1530.4:2014.								
Average clearance measurement	<table border="1"> <tbody> <tr> <td>Top edge</td> <td>0.9 mm</td> </tr> <tr> <td>Latch edge</td> <td>2.0 mm</td> </tr> <tr> <td>Hinge edge</td> <td>1.1 mm</td> </tr> <tr> <td>Bottom edge</td> <td>12.2 mm</td> </tr> </tbody> </table>	Top edge	0.9 mm	Latch edge	2.0 mm	Hinge edge	1.1 mm	Bottom edge	12.2 mm
Top edge	0.9 mm								
Latch edge	2.0 mm								
Hinge edge	1.1 mm								
Bottom edge	12.2 mm								



Figure 1 Unexposed view of the tested hardware



Figure 2 Unexposed view of the tested hardware – bottom view



Figure 3 Uninstalled door closer

4. Discussion

It is expected that if the proposed Lockton SGDC 195S-B surface mounted cam action door closer does not initiate failure of the full scale doorset before failure occurred on the referenced doorsets, then substituting the proposed door lockset with the one tested on the reference doorsets will not be detrimental to the performance of the reference doorsets.

AS 1530.4:2014 states that sustained flaming on the surface of the unexposed face for 10 seconds or longer constitutes integrity failure. During the referenced test EWFA 42205600 the Lockton SGDC 195S-B surface mounted cam action door closer did not initiate failure of the doorset for the duration of the test.

AS 1530.4:2014 Appendix F3 also states that for full scale tests, where the purpose of the test is to validate a variation, the direction of the fire exposure and the specimen mounting may differ from the provisions at full scale. In each instance, the mounting and direction may be arranged to gather data needed for the validation, subject to each feature under examination for the least favourable conditions. The doorset was tested with the door opening away from the furnace, the more favourable of the two configurations, rather than the door opening into the furnace, least favourable. Therefore, this assessment only covers installations whereby the fire hazard is expected only to occur from the side from which the door opens away from the furnace.

Results from full scale test EWFA 42205600 show that the Lockton SGDC 195S-B surface mounted cam action door closer is positively assessed for the test periods as indicated in Table 6.

5. Conclusions

It is the opinion of Warringtonfire's accredited fire testing laboratory in Australia that the doorsets listed in Table 6 will achieve the FRL shown in Table 6 if they are fitted with a Lockton SGDC 195S-B surface mounted cam action door closer on the doorsets. This opinion is based on the full-scale test done.

This assessment report has been prepared in accordance with section 4.5 of AS 1905.1:2015 and is conditional on the operational characteristics and materials of the doorset complying with section 2 of AS 1905.1:2015. The field of application for Lockton SGDC 195S-B surface mounted cam action door closer is the same as the field of application for the doorset that the door closer is installed on.



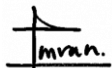
Table 6 Conclusion

Test reference	Description	FRL
FSV 0609	Single leaf plywood faced E-core doorset, nominally 45 mm thick.	-/120/30
SI 2271	Two leaf plywood faced E-core doorset, nominally 45 mm thick.	-/120/30

Conditions and validity

- The conclusions of this assessment may be used to directly assess the fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.
- Because of the nature of fire resistance testing, and the consequent difficulty in quantifying the uncertainty of measurement, it is not possible to provide a stated degree of accuracy of the result. The inherent variability in test procedures, materials and methods of construction, and installation may lead to variations in performance between elements of similar construction.
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Quality management

Revision	Date	Expiry date	Information about the report			
462205600d.1	6 September 2016	2 September 2021	Description	Initial issue		
			Name	Prepared by Anthony Rosamilia	Reviewed by Steve Halliday	
DHAR2.0	14 December 2021	31 December 2026	Description	Report revalidated and expiry date is extended for 5 years.		
				Prepared by Kevin Feng	Reviewed by Imran Ahamed	Authorised by Imran Ahamed
						

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