warringtonfire
Proud to be part of element

Door hardware assessment

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

Report sponsor: Davcor Group Pty Ltd

Products: Various Davcor surface mounted door closers

Report number: FAS210177

Revision: DHAR1.0

Contents

1. Introduction

This report documents the findings of the assessment to determine the likely fire resistance level (FRL) of various surface mounted door closers tested in accordance with section 2 and appendix B11 of AS 1530.4:2014.

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

Table 1 Sponsor details

Sponsor	Address
Firecore Pty Ltd	291 Warringah Road Beacon Hill, NSW 2100 Australia
Davcor Group Pty Ltd	14 John Hines Avenue Minchinbury, NSW 2770 Australia

2. Variations considered in this report

The variations considered in this report are fitting various surface mounted cam-action door closers listed in Table 2 instead of the door closers tested in the referenced test reports listed in Table 3. Table 4 provides additional supporting information about the doorset.

Table 2 Proposed surface mounted door closers

Door hardware	Door closer mass (kg)	Door closer dimensions (mm)
Davcor surface mounted door closers		
CDC-CA2 + slide arm (tested)	2.580	256 mm wide × 60 mm height × 48 mm depth
T83J + link arm (tested)	2.500	296 mm wide × 60 mm height × 49 mm depth
CDC-CA1 + slide arm	1.941	240 mm wide × 56 mm height × 43 mm depth
CDC-1 + link arm	1.367	207 mm wide × 60 mm height × 39 mm depth
CDC-5 + link arm	2.209	256 mm wide × 60 mm height × 48 mm depth
CDC-3 + link arm	1.625	236 mm wide × 60 mm height × 39 mm depth

Table 3 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 4 Additional supporting information

Test reports	Doorset description	Door hardware	Test duration	Test standard
FRT210054 R1.0	Single leaf TVC30 core Firecore doorset, nominally 38 mm thick.	T83J closer + link arm	121 minutes	AS 1530.4:2014
FRT210055 R1.0	Single leaf TVC30 core Firecore doorset, nominally 38 mm thick.	CDC-CA2 + slide arm	121 minutes	AS 1530.4:2014

3. Description of the tested door hardware

Table 5 describes the tested door hardware specimen. This information was provided by the test sponsor and surveyed by Warringtonfire.

Table 6 and Table 7 describes the pre-test functionality test done on the door system.

Photographs of the test specimen are included in Figure 1 to Figure 4.

All measurements were done by Warringtonfire – unless indicated otherwise.

Table 5 Specimen description

Item	Description	
Door hardware product name	T83J closer + link arm	CDC-CA2 surface mounted cam-action closer with electromagnetic hold-open track arm
Door system properties		
Door leaf thickness	38 mm	
Location of door closer	The anchor point was mounted to a bracket on the underside of the stop (head) of the door frame with the body mounted to the door leaf. The bracket was mounted approximately 300 mm left of the right door jamb. The top edge of the closer body was 80 mm from the top edge of the door leaf and the right-side edge was 15 mm from the hinge side of the door leaf.	The body was installed on the leaf 48 mm from the top edge of the door leaf and 37 mm from the hinge edge of the leaf.
Location of slider track	n/a	The track was screw fixed to the top stop approximately 110 mm away from the right hinge side door jamb.

Table 6 Specimen functionality test for T83J door closer

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 – in accordance with clause 7.2.5 of AS 1530.4:2014.		
Opening force	0.25 N		
Closing force	2.1 N		
Latching force	7.1 N		
Average clearance measurement	Between leaf and frame (Exposed side)	Top edge	1.9 mm
		Latch edge	1.1 mm
		Hinge edge	1.5 mm
	Between leaf and stop (Unexposed side)	Top edge	0.5 mm
		Latch edge	2.2 mm
		Hinge edge	2.9 mm

Table 7 Specimen functionality test for CDC-CA2 door closer

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 – in accordance with clause 7.2.5 of AS 1530.4:2014.	
Opening force	1.0 N	
Closing force	1.5 N	
Latching force	3.4 N	
Average clearance measurement	Top edge	1.7 mm
	Latch edge	1.6 mm

Item	Description	
	Hinge edge	1.8 mm

Figure 1 Unexposed view of the tested T83J closer + link arm

Figure 2 Above view of the tested T83J closer + link arm

Figure 3 Unexposed view of the tested CDC-CA2 closer with electromagnetic track arm

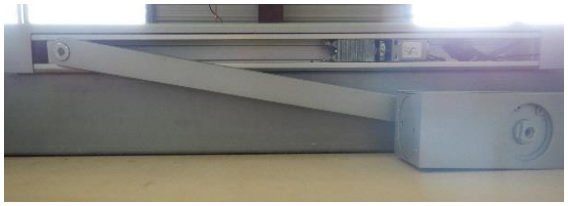


Figure 4 Below view of the tested CDC-CA2 closer with electromagnetic track arm

4. Discussion

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

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.

Two fire resistance tests – in accordance with section 2 and appendix B11 of AS 1530.4:2014 – were done on a pilot scale doorset. The tests included a T83J surface mounted closer + link arm and a CDC-CA2 surface mounted cam-action closer with electromagnetic hold-open track arm fitted onto the door leaf with the anchor fixed to the frame. During the pilot scale tests reported in FRT210054 R1.0 and FRT210055 R1.0, the tested T83J door closer + link arm and CDC-CA2 cam-action closer with electromagnetic track arm did not initiate failure of the doorset for the duration of the tests. The tested door closer systems did not cause the pilot scale doorset to fail before the referenced doorsets failed.

Clause 7.9.7 (l) of AS 1530.4:2014 stipulates that "*An alternative closer manufactured by the same manufacturer and of a smaller size closer in the same series of closers may be used, provided the closer—*

(i) is manufactured from the same materials;

(ii) has the same operating mechanism design; and

(iii) uses the same hydraulic fluids.

The proposed range of replacement door closers specified in Table 2 are manufactured by the same manufacturer of the tested specimen using the same materials, has the same design, and hydraulic fluids as required by AS 1530.4:2014. A detailed survey to measure the mass and dimensions of the proposed door closers was conducted as detailed in Table 2. The survey found that all the proposed door closers were smaller in size and have a lower mass compared to the tested door closers in FRT210054 R1.0 and FRT210055 R1.0.

Based on our assessment and results of the pilot scale tests, adding the proposed door closers as described in Table 2 to the referenced doorset will not impact its performance.

5. Conclusions

It is the opinion of Warringtonfire's accredited fire testing laboratory in Australia that the doorsets listed in Table 8 will achieve the FRL shown in Table 8 if they are fitted with proposed door closers described in Table 2 on the doorset. This opinion is based on the referenced pilot scale tests 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 proposed door closers is the same as the field of application for the doorset that the proposed door closers is installed on.

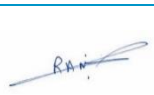
Table 8 Conclusion

Test reference	Description	Assessed hardware	FRL
FSV 1382a	Single leaf TVC30 core Firecore doorset, nominally 38 mm thick	Table 2	**-/120/30**
FSV 1418a	Single leaf TVC40 core Firecore doorset, nominally 48 mm thick	Table 2	**-/120/30**
FSV 1391a	Double leaf TVC40 core Firecore doorset, nominally 48 mm thick	Table 2	**-/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

<table>
<tr><th>Revision</th><th>Date</th><th>Expiry date</th><th colspan="4">Information about the report</th></tr>
<tr><td rowspan="5">FAS210177 DHAR1.0</td><td rowspan="5">26 August 2021</td><td rowspan="5">31 August 2026</td><td>Description</td><td colspan="3">Initial issue</td></tr>
<tr><td></td><td>Prepared by</td><td>Reviewed by</td><td>Authorised by</td></tr>
<tr><td>Name</td><td>Rami Al-Darwish</td><td>Yomal Dias</td><td>Omar Saad</td></tr>
<tr><td>Signature</td><td>  </td><td>  </td><td>  </td></tr>
<tr><td colspan="4"></td></tr>
</table>

warringtonfire

Proud to be part of element

Warringtonfire Australia Pty Ltd
ABN 81 050 241 524

Perth

Unit 22, 22 Railway Road
Subiaco WA 6008
Australia
T: +61 8 9382 3844

Canberra

Unit 10, Leichhardt Street
Kingston ACT 2604
Australia
T: +61 2 6260 8488

Melbourne

Level 9, 401 Collins Street
Melbourne VIC 3000
Australia
T: +61 3 9767 1000

Sydney

Suite 802, Level 8, 383 Kent Street
Sydney NSW 2000
Australia
T: +61 2 9211 4333

Brisbane

Suite 6, Level 12, 133 Mary Street
Brisbane QLD 4000
Australia
T: +61 7 3238 1700

Melbourne – NATA accredited laboratory

409-411 Hammond Road
Dandenong South VIC 3175
Australia
T: +61 3 9767 1000