



Door hardware assessment

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

Report sponsor: E+ Building Products and Davcor Group Pty Ltd

Product: Davcor Carbine CDC-5-S EN2-6 Door Closer

Report number: FRT210369

Revision: DHAR1.0

Contents

1. Introduction	3
2. Variations considered in this report	3
3. Description of the tested door hardware	4
4. Assessment	5
5. Conclusion	5

1. Introduction

This report documents the findings of the assessment undertaken to determine the expected fire resistance level (FRL) of a Davcor Carbine CDC-5-S EN2-6 Door Closer if tested in accordance with section 2 and appendix B11 of AS 1530.4:2014¹ and assessed in accordance with AS 1905.1:2015².

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
Davcor Group Pty Ltd	14 John Hines Avenue Minchinbury NSW 2270 Australia

2. Variations considered in this report

The variations considered in this report are:

Fitting a Davcor Carbine CDC-5-S EN2-6 Door Closer instead of the closer tested in referenced test reports listed in Table 2. Table 3 provides additional supporting information about the tested hardware.

Table 2 Referenced test reports

Test reference	Doorset description	Test standard
FSV 0608	Single leaf plywood faced E-core mini doorset, nominally 35 mm thick	AS 1530.4:1997
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	Test date	Doorset description	Test duration	Test standard
FRT210369 R1.0	15 November 2021	Single leaf plywood faced E-core mini doorset, nominally 35 mm thick	121 minutes	AS 1530.4:2014

¹ Standards Australia, 2014, Methods for fire tests on building materials, components and structures – Part 4: Fire-resistance tests for elements of construction, AS 1530.4:2014, Standards Australia, NSW.

² Standards Australia, 2015, Components for the protection of openings in fire-resistant walls Fire-resistant doorsets, AS 1905.1:2015, Standards Australia, NSW.

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.

All measurements were done by Warringtonfire – unless indicated otherwise.

Table 4 Specimen description

Item		Description
Door hardware product name		Davcor Carbine CDC-5-S EN2-6 Door Closer
Details	Body:	256 mm long × 60 mm tall × 48 mm deep Mass: 2.23 kg
	Arm:	Mass: 0.67 kg
Material	Body:	Steel and zinc diecast
	Arm:	Forged steel
Installation	The anchor point was mounted to the stop (head) of the door frame 154 mm left of the hinge side stop with the body mounted to the door leaf, with closer being in a parallel arm configuration. The top edge of the closer body was 76 mm from the top edge of the door leaf and the right side edge was 52 mm from the hinge side of the door leaf.	
Door leaf thickness		38 mm

Table 5 Specimen functionality test

Item		Description	
Opening and closing cycles		The door was 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 (doorsets) – with closer		19.6 N	
Opening force (doorsets) – without closer		4.4 N	
Closing force (doorsets) – without closer		2.9 N	
Latching force (doorsets) – without closer	Lockset	8.3	
	Rim latch	18.6 N	
	Both together	11.8 N	
Average clearance measurement (door leaf to frame)	Top edge	1.2 mm	
	Latch edge	2.3 mm	
	Hinge edge	1.7 mm	
Average clearance measurement (door leaf to doorstop)	Top edge	3.1 mm	
	Latch edge	1.0 mm	
	Hinge edge	2.3 mm	



Figure 1 Unexposed side view of the tested hardware

4. Assessment

Section 4 of AS 1905.1:2015 requires some variations from tested prototypes to be subjected to a pilot scale test for assignment of FRL. As such, in addition to the full-scale tests listed in Table 2, a pilot scale test listed in Table 3 forms the basis of this assessment.

A pilot scale fire resistance test – in accordance with section 2 and Appendix B11 of AS 1530.4:2014 – was done on a pilot scale doorset under the test reference - FRT210369. It included a Davcor Carbine CDC-5-S EN2-6 Door Closer fitted Choose an item. the door leaf.

AS 1530.4:2014 states that either sustained flaming on the surface of the unexposed face for 10 seconds or longer, ignition of a cotton pad or gap gauge failure constitute integrity failure. During the test – FRT210369 – the Davcor Carbine CDC-5-S EN2-6 Door Closer did not initiate failure of the doorset for the duration of the test.

As the proposed Davcor Carbine CDC-5-S EN2-6 Door Closer did not cause failure in FRT210369, then substituting the proposed hardware for the hardware tested in the referenced doorsets is not expected to affect their performance.

5. Conclusion

It is the opinion of Warringtonfire's accredited fire testing laboratory in Australia that the proposed doorsets are expected to achieve the FRLs shown in Table 6 if fitted with the listed hardware

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 Davcor Carbine CDC-5-S EN2-6 Door Closer is the same as the field of application for the doorset that the Davcor Carbine CDC-5-S EN2-6 Door Closer is installed on.




Table 6 Conclusion

Test reference	Description	Assessed hardware	FRL
FSV 0608	Single leaf plywood faced E-core mini doorset, nominally 35 mm thick	Davcor Carbine CDC-5-S EN2-6 Door Closer	-/120/30
FSV 0609	Single leaf plywood faced E-core doorset, nominally 45 mm thick	Davcor Carbine CDC-5-S EN2-6 Door Closer	-/120/30
SI 2271	Two leaf plywood faced E-core doorset, nominally 45 mm thick	Davcor Carbine CDC-5-S EN2-6 Door Closer	-/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.
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Quality management

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