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Door hardware assessment

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

Test sponsor: E+ Building Products Pty Ltd

Product: DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock

Job number: FRT210213

Test date: 15 June 2021 Revision: DHAR1.0

Contents

1. Introduction

This report documents the findings of the assessment to determine the likely fire resistance level (FRL) of a DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock 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
McGrath Locks – DAC Systems Pty Ltd	28 Cheviot Street Grange QLD 4051 Australia

2. Variations considered in this report

The variations considered in this report are:

Fitting a DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock instead of the lockset 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 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	Doorset description	Test duration	Test standard
FRT210213 R1.0	Single leaf plywood faced E-core doorset, nominally 35 mm thick.	121 minutes	AS 1530.4:2014
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 on 15 June 2021. It included a DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock fitted onto 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.

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

All measurements were done by Warringtonfire – unless indicated otherwise.

Table 4 Specimen description

Item	Description
Door hardware product name	DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock
Door system properties	
Door leaf thickness	38 mm
Backset	95 mm
Lockset type	Mortice
Location of lockset	The spindle of the lockset was located 215 mm from the bottom of the door leaf.
Cut out size of lockset	To fit mortice lock

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 – in accordance with clause 7.2.5 of AS 1530.4:2014.		
Opening force	1.0 N		
Closing force	1.5 N		
Latching force	16.7 N		
Moment of lever	0.052 Nm		
Average clearance measurement	Between leaf and frame (Exposed side)	Top edge	1.8 mm
		Latch edge	2.1 mm
		Hinge edge	1.4 mm
	Between leaf and stop (Unexposed side)	Top edge	0.4 mm
		Latch edge	1.2 mm
		Hinge edge	1.1 mm

Figure 1 Unexposed view of the tested hardware

Figure 2 Exposed view of the tested hardware

Figure 3 Latch edge view of the tested hardware

Figure 4 Pre-installation: tested hardware

4. Discussion

The proposed DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock did not cause the pilot scale doorset to fail before the referenced doorset failed.

Adding the proposed DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock to the referenced doorset should therefore not affect its performance.

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 pad, or the latching mechanism being disengaged at the end of the test constitutes integrity failure. During the test – FRT210213 – the DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock did not initiate failure of the doorset for the duration of the test.

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 DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock on the doorsets. 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 DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock is the same as the field of application for the doorset that the DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock is installed on.

Table 6 Conclusion

Test reference	Description	FRL
FSV 0608	Single leaf plywood faced E-core mini doorset, nominally 35 mm thick.	**-/120/30**
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.
- 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.
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<tr><td></td><td>Prepared by</td><td>Reviewed by</td><td>Authorised by</td></tr>
<tr><td>Name</td><td>Anthony Rosamilia</td><td>Patrick Chan</td><td>Patrick Chan</td></tr>
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Door hardware assessment

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

Report sponsor: McGrath Locks Pty Ltd and Firecore Pty Ltd

Product: DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock

Report number: FRT210244

Revision: DHAR1.0

Contents

1. Introduction

This report documents the findings of the assessment undertaken to determine the expected fire resistance level (FRL) of a DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock. It was tested in accordance with section 2 and appendix B11 of AS 1530.4:2014[1] and it is assessed in accordance with AS 1905.1:2015[2].

Warringtonfire performed 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
McGrath Locks Pty Ltd	28 Cheviot Street Grange QLD 4051 Australia

2. Variations considered in this report

The variations considered in this report are:

Fitting a DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock instead of lockset 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 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	Test date	Doorset description	Test duration	Test standard
FRT210244 R1.0	6 September 2021	Single leaf TVC30 core Firecore doorset, nominally 38 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 to Figure 4.

All measurements were done by Warringtonfire – unless indicated otherwise.

Table 4 Specimen description

Item	Description	
Door hardware product name	DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock	
Door thickness	38 mm	
Material	Lever	Alloy
	Body	Steel, alloy, wiring and electronic parts components
	Latch bolt	Stainless steel
	Cover plate	Stainless steel
	Retainer plate	Stainless steel
	Strike plate	Stainless steel
	Mortice body and mechanism	Stainless steel
Lock type	Mortice	
Lock details	Cut out	To fit mortice
	Furniture size (both sides)	180 mm × 72 mm × 23 mm
	Lever size (both sides)	125 mm × 26 mm × 13 mm
	Backset	95 mm
	Mortice Body Size	120 mm × 120 mm × 20 mm
	Cover plate	175 mm × 25 mm × 2 mm
	Plate size	175 mm × 25 mm × 2 mm
Lever Moment	0.052 Nm	
Installation	The spindle of the lockset was located 215 mm from the bottom of the door leaf.	

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	1.0 N	
Closing force	1.0 N	
Latching force	16.0 N	
Average clearance measurement (door leaf to frame)	Top edge	1.9 mm
	Latch edge	1.9 mm
	Hinge edge	1.8 mm
Average clearance measurement (door leaf to doorstop)	Top edge	2.2 mm
	Latch edge	1.3 mm
	Hinge edge	3.3 mm

Figure 1 Unexposed side view of the tested hardware

Figure 2 Exposed side view of the tested hardware

Figure 3 Latch edge side view of the tested hardware

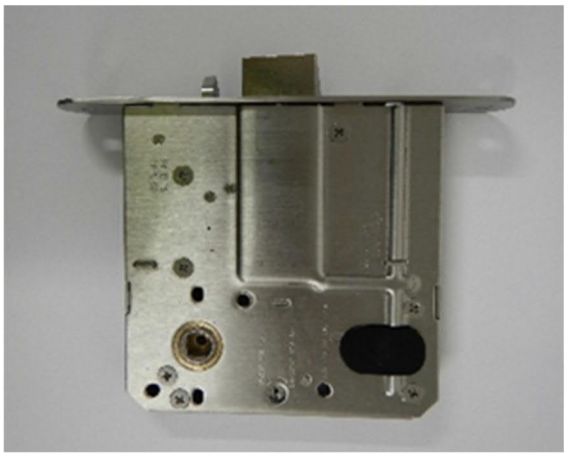

Figure 4 Pre-installation: tested hardware

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 - FRT210244. It included a DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock fitted onto 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, gap gauge failure or the latching mechanism being disengaged at the end of the test constitute integrity failure. During the test – FRT210244 – the DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock did not initiate failure of the doorset for the duration of the test.

As the proposed DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock did not cause failure in FRT210244, 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 DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock is the same as the field of application for the doorset that the DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock is installed on.

Table 6 Conclusion

Test reference	Description	Assessed hardware	FRL
FSV 1382a	Single leaf TVC30 core Firecore doorset, nominally 38 mm thick.	DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock	**-/120/30**
FSV 1418a	Single leaf TVC40 core Firecore doorset, nominally 48 mm thick.	DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock	**-/120/30**
FSV 1391a	Double leaf TVC40 core Firecore doorset, nominally 48 mm thick.	DAC Systems Smart Lock with Dormakaba MS2900 Series Mortice Lock	**-/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.
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Door hardware assessment

Report sponsor: McGrath Locks Pty Ltd and Firecore Pty Ltd

Product: Dormakaba MS2602 mortice lock with the DAC Systems smart lock

Report number: FAS230019

Revision: DHAR1.0

Contents

1. Introduction

This report documents the findings of the assessment to determine the expected fire resistance level (FRL) of Dormakaba MS2602 mortice lock in conjunction with the DAC Systems smart lock if tested in accordance with AS 1530.4:2014[1] and assessed in accordance with AS 1905.1:2015[2].

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

Table 1 Report sponsor details

Report sponsor	Address
Firecore Pty Ltd	291 Warringah Road Beacon Hill NSW 2100 Australia
McGrath Locks – DAC Systems Pty Ltd	28 Cheviot Street Grange QLD 4051 Australia

2. Variations considered in this report

The variation considered in this report is fitting a Dormakaba MS2602 mortice lock onto the DAC Systems smart lock instead of the locksets tested in the 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 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	Test date	Doorset description	Test duration	Test standard
FRT210244 R1.0	6 September 2021	Single leaf TVC30 core Firecore doorset, nominally 38 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 to Figure 2.

All measurements were done by Warringtonfire – unless indicated otherwise.

Table 4 Specimen description

Item	Description	
Door hardware product name	DAC Systems Smart Lock with Dormakaba MS2900 Series mortice lock	
Door thickness	38 mm	
Material	Lever	Alloy
	Body	Steel, alloy, wiring and electronic parts components
	Latch bolt	Stainless steel
	Cover plate	Stainless steel
	Retainer plate	Stainless steel
	Strike plate	Stainless steel
	Mortice body and mechanism	Stainless steel
Lock type	Mortice	
Lock details	Cut out	To fit mortice
	Furniture size (both sides)	180 mm × 72 mm × 23 mm
	Lever size (both sides)	125 mm × 26 mm × 13 mm
	Backset	95 mm
	Mortice Body Size	120 mm × 120 mm × 20 mm
	Cover plate	175 mm × 25 mm × 2 mm
	Plate size	175 mm × 25 mm × 2 mm
Lever Moment	0.052 Nm	
Installation	The spindle of the lockset was located 215 mm from the bottom of the door leaf.	

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	1.0 N	
Closing force	1.0 N	
Latching force	16.0 N	
Average clearance measurement (door leaf to frame)	Top edge	1.9 mm
	Latch edge	1.9 mm
	Hinge edge	1.8 mm
Average clearance measurement (door leaf to doorstop)	Top edge	2.2 mm
	Latch edge	1.3 mm
	Hinge edge	3.3 mm

Figure 1 Latch edge view of the tested hardware

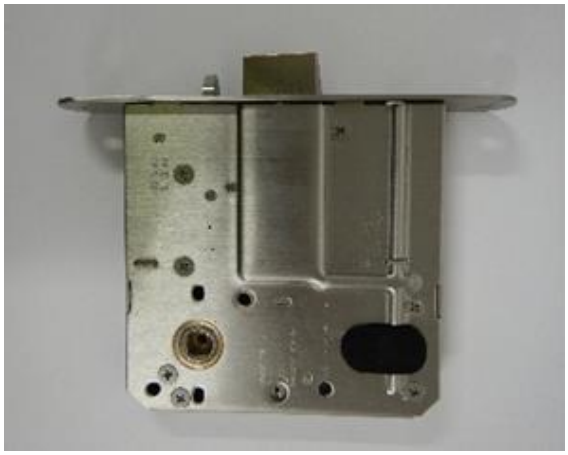

Figure 2 Pre-installation: tested hardware

4. Assessment

4.1 Tested hardware

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, 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 FRT210244 R1.0. It included a Dormakaba MS2900 series mortice lock with the DAC Systems smart lock fitted onto 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, gap gauge failure or the latching mechanism being disengaged at the end of the test constitute integrity failure. During the test – FRT210244 R1.0 – the

Dormakaba MS2900 series mortice lock did not initiate failure of the doorset for the duration of the test.

As the Dormakaba MS2900 series mortice lock with the DAC Systems smart lock did not cause failure in FRT210244 R1.0, adding the Dormakaba MS2900 series mortice lock with the DAC Systems smart lock to the referenced doorsets is not expected to affect their performance.

4.2 Assessment of Dormakaba MS2602 mortice lock

The proposed Dormakaba MS2602 mortice lock is generally similar to the tested Dormakaba MS2900 series mortice lock, and both are constructed from the same materials. Therefore, the melting point and the function of both locksets remain identical. The only variation between the locksets is their backset. Dormakaba MS2900 series mortice lock has a 95 mm backset whereas Dormakaba MS2602 mortice lock has a 60 mm backset.

The amount of door core that needs to be removed from the door leaf to fit the proposed Dormakaba MS2602 mortice lock with a 60 mm backset is lesser than the amount of door core that needs to be removed to insert the Dormakaba MS2900 series mortice lock with a 90 mm backset. On that basis, it is expected that the proposed MS2602 mortice lock will perform at least similarly or better than the tested MS2900 series mortice lock under similar fire conditions.

Furthermore, Clause 7.9.7(g) of AS 1530.4:2014 stipulates: *'The backset of a mortice lockset or mortice latchset may be reduced.'*

Based on the above, it is expected that the Dormakaba MS2602 mortice lock will perform at least similarly or better than the Dormakaba MS2900 lockset if tested in a pilot scale test. As the Dormakaba MS2900 lockset did not cause failure in FRT210244 R1.0, substituting the MS2602 lockset for the hardware tested in the referenced doorsets is not expected to affect their performance. Based on the above discussion, the Dormakaba MS2602 lockset is positively assessed.

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 the DAC Systems smart lock is 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 Dormakaba MS2602 mortice lock is the same as the field of application for the doorset that the Dormakaba MS2602 mortice lock is installed on.

Table 6 Conclusion

Test reference	Description	Assessed hardware	FRL
FSV 1382a	Single leaf TVC30 core Firecore doorset, nominally 38 mm thick.	Dormakaba MS2602 mortice lock in conjunction with the DAC Systems smart lock	**-/120/30**
FSV 1418a	Single leaf TVC40 core Firecore doorset, nominally 48 mm thick.		**-/120/30**
FSV 1391a	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.
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Door hardware assessment

Report sponsor: McGrath Locks Pty Ltd and Firecore Pty Ltd

Product: McGrath Locks DACS Systems Smart Lock with Lockwood 530 tubular latch

Report number: FAS220380 Revision: DHAR1.0

Contents

1. Introduction

This report documents the findings of the assessment to determine the expected fire resistance level (FRL) of McGrath Locks DACS Systems Smart Lock with Lockwood 530 tubular latch with Lockwood 530 tubular latch in accordance with AS 1530.4:2014[1] and AS 1905.1:2015[2].

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

Table 1 Report sponsor details

Report sponsor	Address
Firecore Pty Ltd	291 Warringah Road Beacon Hill NSW 2100 Australia
McGrath Locks Pty Ltd	28 Cheviot Street Grange QLD 4051 Australia

2. Variations considered in this report

The variation considered in this report is fitting a McGrath Locks DACS Systems Smart Lock with Lockwood 530 tubular latch with Lockwood 530 tubular brass latch instead of the hardware fitted to the doorsets referenced in test reports listed in Table 2. Table 3 provides additional supporting information about the tested hardware. The backset of Lockwood 530 tubular brass latch is proposed to be varied as below:

- 60 mm
- 70 mm (tested)
- 127 mm

Table 2 Referenced test reports

Test reference	Doorset description	Test standard
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
FSV 1954	Single leaf TVC40 core Firecore doorset, nominally 48 mm thick	AS 1530.4:2014
FSV 2244	Double leaf TVC40 core Firecore doorset, nominally 48 mm thick	AS 1530.4:2014

Table 3 Additional supporting information

Test report	Test date	Doorset description	Test duration	Test standard
FRT220234 R1.0	6 February 2023	Single leaf TVC40 core Firecore doorset, nominally 48 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 specimens. 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	McGrath Locks DACS Systems Smart Lock with Lockwood 530 tubular latch with a Lockwood 530 tubular (brass) latch
Door system properties	
Door leaf thickness	48 mm
Backset	70 mm
Lockset type	Tubular
Cut out size of lockset	To fit tubular latch

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 in accordance with clause 7.2.5 of AS 1530.4:2014.	
Opening force with closer	27 N	
Closing force	2 N	
Latching force	15 N	
Average clearance measurement (door leaf to frame)	Top edge	2.4 mm
	Latch edge	1.2 mm
	Hinge edge	3.0 mm
Average clearance measurement (door leaf to doorstop)	Top edge	1.0 mm
	Latch edge	0.4 mm
	Hinge edge	1.1 mm

Figure 1 Unexposed view of the tested hardware

Figure 2 Exposed view of the tested hardware

Figure 3 Latch edge view of the tested hardware

4. Assessment

4.1 Tested hardware

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

A pilot scale fire resistance test – in accordance with section 2, Appendix B11 of AS 1530.4:2014 – was done on a pilot scale doorset under FRT220234 R1.0. It included a McGrath Locks DACS Systems Smart Lock with Lockwood 530 tubular latch and a Lockwood 530 tubular (brass) latch fitted onto 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, gap gauge failure, or the latching mechanism being disengaged at the end of the test constitute integrity failure. During the test – FRT220234 R1.0 – the McGrath Locks DACS Systems Smart Lock with Lockwood 530 tubular latch with a Lockwood 530 tubular (brass) latch did not initiate failure of the doorset for the duration of the test.

As the proposed McGrath Locks DACS Systems Smart Lock with a Lockwood 530 tubular (brass) latch did not cause failure in FRT220234 R1.0, substituting the proposed McGrath Locks DACS Systems Smart Lock with a Lockwood 530 tubular (brass) latch for the hardware tested in the referenced doorsets is not expected to affect their performance.

4.2 Variation in backset size

It is proposed that the Lockwood 530 tubular brass latch be varied to include options for 60-, 70- and 127-mm backsets.

AS 1530.4:2014, clause 7.9.7 (h) states "*The backset of a cylindrical lockset or latchset may be varied, provided no additional encroachment is made on any structural framework of the door leaf and the fixing method remains identical".*

The Lockwood 530 tubular brass latch was tested with a 70 mm backset. The proposed variation to reduce the backset to 60 mm and increase it to 127 mm does not increase the encroachment on the structural framework of the door leaf, and the fixing method is not changed. As such, the variations discussed can be positively assessed based on the permissible variations outlined in AS 1530.4:2014, clause 7.9.7 (h).

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 McGrath Locks DACS Systems Smart Lock with Lockwood 530 tubular latch is the same as the field of application for the doorset that the McGrath Locks DACS Systems Smart Lock with Lockwood 530 tubular latch is installed on.

Table 6 Conclusion

Test reference	Description	Assessed hardware	FRL
FSV 1418a	Single leaf TVC40 core Firecore doorset, nominally 48 mm thick	McGrath Locks DACS Systems Smart Lock with a Lockwood 530 tubular brass latch with the following backsets: • 60 mm • 70 mm • 127 mm	**-/120/30**
FSV 1391a	Double leaf TVC40 core Firecore doorset, nominally 48 mm thick		**-/120/30**
FSV 1954	Single leaf TVC40 core Firecore doorset, nominally 48 mm thick		**-/120/30**
FSV 2244	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.
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Quality management

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<tr><th>Revision</th><th>Issue date</th><th>Expiry date</th><th colspan="4">Information about the report</th></tr>
<tr><td rowspan="4">DHAR1.0</td><td rowspan="4">30 Mar 2023</td><td rowspan="4">31 Mar 2028</td><td>Description</td><td colspan="3">Initial issue</td></tr>
<tr><td rowspan="3"></td><td>Prepared by</td><td>Reviewed by</td><td>Authorised by</td></tr>
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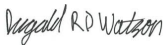
<tr><td>Signature</td><td>  </td><td>  </td><td>  </td></tr>
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Door hardware assessment

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

Report sponsor: McGrath Locks Pty Ltd

Product: McGrath Locks DACS Systems Smart Lock with a Lockwood 530 tubular latch on Firecore Maxi doorset

Report number: FRT220234

Revision: DHAR1.0

Contents

1. Introduction

This report documents the findings of the assessment undertaken to determine the expected fire resistance level (FRL) of a McGrath Locks DACS Systems Smart Lock with a Lockwood 530 tubular latch tested in accordance with section 2 and appendix B11 of AS 1530.4:2014[1] and assessed in accordance with AS 1905.1:2015[2].

Warringtonfire performed 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
McGrath Locks Pty Ltd	28 Cheviot Street Grange QLD 4051 Australia

2. Variations considered in this report

The variations considered in this report are:

Fitting a McGrath Locks DACS Systems Smart Lock with a Lockwood 530 tubular latch instead of the lockset 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 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

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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	McGrath Locks DACS Systems Smart Lock with a Lockwood 530 tubular latch	
Manufacturer	McGrath Locks	
Material	Lever handle	Alloy
	Latch bolt	Brass
	Latch body and mechanism	Steel, brass
	Cover plate	Steel
	Latch retainer plate	Steel
	Lock retainer plate	Stainless steel
	Strike plate	Stainless steel
	Lock body	Steel, stainless steel
	Lock body and mechanism	Steel, alloy, wiring and electronic parts with plastic covers, silicon gaskets and four Duracell AA 1.5V alkaline batteries.
Lock type	Tubular latch	
Lock details	Cut out	To fit tubular
	Furniture size (both sides)	180 mm × 72 mm × 26 mm
	Lever size (both sides)	125 mm × 25 mm × 12 mm
	Backset	70 mm
	Latch	Ø22 mm × 85 mm
	Cover plate size	57 mm × 25 mm × 4 mm
Installation	The spindle located 245 mm from the bottom of the door leaf	
Door leaf thickness	48 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 – with closer	27 N	
Closing force	2.0 N	
Latching force	15 N	
Average clearance measurement (door leaf to frame)	Top edge	2.4 mm
	Latch edge	1.2 mm
	Hinge edge	3.0 mm

Item	Description	
Average clearance measurement (door leaf to doorstop)	Top edge	1.0 mm
	Latch edge	0.4 mm
	Hinge edge	1.1 mm

Figure 1 Unexposed side view of the tested hardware

Figure 2 Exposed side view of the tested hardware

Figure 3 Latch edge 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 - FRT220234. It included a McGrath Locks DACS Systems Smart Lock with a Lockwood 530 tubular latch fitted onto 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, gap gauge failure or the latching mechanism being disengaged at the end of the test constitute integrity failure. During the test – FRT220234 – the McGrath Locks DACS Systems Smart Lock with a Lockwood 530 tubular latch did not initiate failure of the doorset for the duration of the test.

As the proposed McGrath Locks DACS Systems Smart Lock with a Lockwood 530 tubular latch did not cause failure in FRT220234, 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 McGrath Locks DACS Systems Smart Lock with a Lockwood 530 tubular latch is the same as the field of application for the doorset that the McGrath Locks DACS Systems Smart Lock with a Lockwood 530 tubular latch is installed on.

Table 6 Conclusion

Test reference	Description	Assessed hardware	FRL
FSV 1418a	Single leaf TVC40 core Firecore doorset, nominally 48 mm thick.	McGrath Locks DACS Systems Smart Lock with a Lockwood 530 tubular latch	**-/120/30**
FSV 1391a	Double leaf TVC40 core Firecore doorset, nominally 48 mm thick.	McGrath Locks DACS Systems Smart Lock with a Lockwood 530 tubular latch	**-/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.
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