

EN 1634-1:2014/A1:2018



Fire Resistance Test for Doorsets incorporating Electronic lock F7-S70 & P1-S70

A report to:

Foshan Luokai Locking Technology
Company Limited

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1. SUMMARY

Product: Fire-resistance doorset with Electronic door lock
Manufactured by Foshan Luokai Locking Technology Company Limited
Model: F7-S70, P1-S70

The performance of the specimen was judged against the criteria for integrity and insulation, as required by EN 1634-1:2014/A1:2018, and the results obtained were as follows:

		Doorset A	Doorset B	Doorset C
Integrity (E)	Sustained flaming	68 min, no failure	68 min, no failure	68 min, no failure
	Gap gauge	68 min, no failure	68 min, no failure	68 min, no failure
	Cotton pad	68 min, no failure	68 min, no failure	68 min, no failure
Insulation (I₂)	Door leaf	68 min, no failure	68 min, no failure	68 min, no failure
	Door frame	68 min, no failure	68 min, no failure	68 min, no failure

The test was discontinued after a period of 68 minutes at request of the sponsor.

2. SIGNATURES

Test performed by:



Name: Singh Zhang
Date: 29-May-24
Title: Project Engineer
KAS Quality Service

Report authorised by:

Name: Credy Chen
Date: 29-May-24
Title: Technical Manager
KAS Quality Service

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4. TEST DETAILS

Applicant Information

Applicant Name: Foshan Luokai Locking Technology Company Limited

Applicant Address: Room 603, Building 10 of Photo-electronic Industrial Park,
Leliu, Shunde District, Foshan City, Guangdong, 528300,
China

Sample Information

Product: Fire-resistance doorset with Electronic door lock

Trade Mark: /

Model and/or type reference: F7-S70, P1-S70

Manufacturer: Foshan Luokai Locking Technology Company Limited

Manufacturer Address: Room 603, Building 10 of Photo-electronic Industrial Park,
Leliu, Shunde District, Foshan City, Guangdong, 528300,
China

Sample ID: S240221001-05~07

Date of receipt of test samples: Feb 21, 2024

Situation of receipt samples: Good

Testing Information

Standard: EN 1634-1:2014/A1:2018 & EN 1363-1:2020

Non-standard method or requirement: /

Testing Laboratory name: KAS Quality Service (Guangzhou) Co., Ltd.

Address: Chenziwei, Xinsha Village Committee, Muzhou Town, Xinhui District, Jiangmen, Guangdong 529143, China.

Date (s) of performance of tests: May 6, 2024

Other reports to be used in conjunction with this report: /

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5. TEST OBJECTIVE

The test was conducted in accordance with EN 1634-1:2014/A1:2018 Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware Part 1: Fire resistance test for door and shutter assemblies and openable windows, to determine 60 minutes fire resistance performance of 3 sets of single leaf doorsets, which incorporated various items of building hardware.

The test utilized the general principles for fire resistance testing given in EN 1363-1:2020 Fire resistance tests Part 1: General Requirements.

6. TEST SPECIMEN

3 sets samples were submitted to KAS directly from the sponsor. Sample was not independent selected for testing. Specimens were received at KAS on Feb 21, 2024.

The test specimens were built into a specimen support system according to manufacturer's instruction by KAS. The test construction was shown in Appendix A, Figure A.1& A.2. View from the unexposed side, the doorsets namely doorset A ~ C from left to right respectively. The test doorset A opened away from the heating conditions of test. The test doorset B & C opened toward from the heating conditions of test. View from the unexposed side, the doorsets namely doorset A ~ C from left to right respectively.

6.1 Single leaf doorset A ~ C:

The construction of doorset A, doorset B and doorset C was same.

The single leaf doorset had overall nominal dimensions of 800 mm(W) x 2100 mm(H) x 100 mm(T). The doorset incorporated a single door leaf of overall dimensions 736 mm(W) x 2062 mm(H) x 48 mm (T), which comprised of a core of 43 mm thick Composite Perlite, and sandwiched by 2.5 mm thick plywood on both sides. The door leaf stiles and rails were comprised of 43 mm thick Aspenite-Cred board.

The door leaf was hung within the door frame by 3 nos. of hinges 'IWAKO / H-008'. The door leaf was provided with a door closer 'IWAKO / IW-061A' surface mounted on the unexposed side of the door leaf. Each door leaf of doorset A and doorset B was provided with an electronic lockset 'F7-S70' which was installed 1000 mm above the bottom edge of the door leaf. The doorset C was provided with an electronic lockset 'P1-S70' which was installed 1000 mm above the bottom edge of the door leaf. The lockset was equipped with batteries and on power, latched but unlocked during the fire test.

The battery case of lockset 'F7-S70' was on the unexposed side of doorset A and on the exposed side of doorset B. The battery case of lockset 'P1-S70' was concealed mounting inside the door leaf of doorset C.

Table 1 Specimen description

Refer to Figure B.1~B.7, unless stated otherwise, all values are nominal, and all information in Table 1 is supplied by the client.

Door Leaf	Type	Fire-resistance timber door	
	Nominal Size	736 mm wide x 2062 mm high x 48 mm thick *	
	Facing	Material:	2.5 mm plywood
	Core	Material:	Composite Perlite
		Thickness:	43 mm
	Stiles and rails	Material:	Aspenite-Cred board
		Thickness:	43 mm
Door Frame	Material:	Aspenite-Cred board / Plywood	
	Rebate:	18 mm *	
	Nominal Size:	2100 mm x 800 mm x 100 mm *	

Hardware	Hinge	Brand:	IWAKO
		Model:	H-008
		Material:	Stainless steel
		Size:	3 nos. of 102 x 102 x 3 mm*
	Electronic lock 1	Supplier:	Foshan Luokai Locking Technology Co., Limited
		Brand:	/
		Model:	F7-S70
		Body size:	203 mm x 106 mm x 28 mm
		Status during the test:	On power, latched but unlocked during the test *
		Batteries location:	On unexposed side of doorset A, on exposed side of doorset B.
	Electronic lock 2	Supplier:	Foshan Luokai Locking Technology Co., Limited
		Brand:	/
		Model:	P1-S70
		Body size:	203 mm x 106 mm x 28 mm
		Status during the test:	On power, latched but unlocked during the test *
		Batteries location:	Inside the door leaf of doorset C.
	Door closer	Brand:	IWAKO
		Model:	IW-061A
		Material:	Aluminum alloy
		Size:	179 mm(L) x 41 mm(W) x 64 mm(H)

Specimen Supporting Construction

1. Masonry Wall		
Density	:	1980 kg/m ³
Thickness	:	200 mm
2. Mortar		
Material	:	Cement: Sand
Mix Ratio	:	1:4

* Verified by the laboratory before the test;

Measured by the test laboratory.

After installation, the specimens were stored in the test laboratory. Throughout this period of the storage, both the temperature and relative humidity of laboratory were measured and recorded as being within a range of from 26.0 °C to 28.0 °C and 65% to 80% respectively.

7. TEST EQUIPMENT AND PROCEDURE

The test was conducted in accordance with the procedure specified in EN 1634-1:2014/A1:2018. The ambient temperature of the area was measured and recorded at comment of test. The test data were shown in Table 4.

7.1 Furnace Temperature Control

The furnace opening size is 3.4 x 3.4 m. 9 mineral insulated thermocouples, which were distributed uniformly in the furnace and were kept at 100 ± 50 mm away from the exposed surface of test specimen, were provided to monitor the mean temperature of the furnace.

The mean temperature of the furnace was controlled as close as the standard temperature/time curve specified in Clause 5.1 of EN 1363-1:2020.

The locations and reference numbers of the furnace thermocouples were shown in Figure 1.

7.2 Furnace Pressure Control

Two pressure sensors were provided to monitor and control the furnace pressure after the first five minutes of testing the furnace atmospheric pressure so that it complied with the requirements of Clause 5.2 of EN 1363-1:2020. The pressure condition was assumed a linear pressure gradient of 8.5 Pa per 1 m and a neutral pressure axis at a height of approximately 0.5 m above the notional floor. The pressure at the top of test specimen was controlled within 20 Pa.

The locations and reference numbers of the pressure sensor were shown in Figure 1.

7.3 Unexposed Surface Temperature Monitoring

The unexposed face temperature of the specimen was monitored by thermocouples as follows:

Doorset A:

Thermocouples 1 to 5: At five positions on the unexposed face of the specimen, one approximately at the center and one at the approximate center of each quarter section of specimen.

Thermocouples 6 to 9: At four positions on the unexposed face of the door leaf, four approximately at 100 mm from the door leaf top corner and two at mid height.

Thermocouples 10 to 13: At four positions on the unexposed face of the door frame, two positioned at approximated 50 mm from each vertical edge of top frame, and two at mid-height of vertical frames.

Doorset B:

Thermocouples 14 to 18: At five positions on the unexposed face of the specimen, one approximately at the center and one at the approximate center of each quarter section of specimen.

Thermocouples 19 to 22: At four positions on the unexposed face of the door leaf, four approximately at 100 mm from the door leaf top corner and two at mid height.

Thermocouples 23 to 26: At four positions on the unexposed face of the door frame, two positioned at approximated 50 mm from each vertical edge of top frame, and two at mid-height of vertical frames.

Doorset C:

Thermocouples 27 to 31: At five positions on the unexposed face of the specimen, one approximately at the center and one at the approximate center of each quarter section of specimen.

Thermocouples 32 to 35: At four positions on the unexposed face of the door leaf, four approximately at 100 mm from the door leaf top corner and two at mid height.

Thermocouples 36 to 39: At four positions on the unexposed face of the door frame, two positioned at approximated 50 mm from each vertical edge of top frame, and two at mid-height of vertical frames.

The locations and reference numbers of various unexposed surface thermocouples were shown in Figure 4.

A roving thermocouple was provided to measure temperature on the unexposed surface of the specimen at any position that might appear to be hotter than the temperatures indicated by the fixed thermocouples.

7.4 Integrity Monitoring

Cotton pads and gap gauges were available to evaluate the impermeability of specimen to hot gases. The occurrence of sustained flaming more than 10 s on the unexposed face was also checked to determine compliance with the integrity criterion.

7.5 Deflection of specimen

The horizontal deflection at recommended positions of the specimen was measured throughout the test by means of a straight steel ruler paralleled to the unexposed face via a taut fine steel wire. Recommended

positions for measuring deflection were shown in Figure 3.

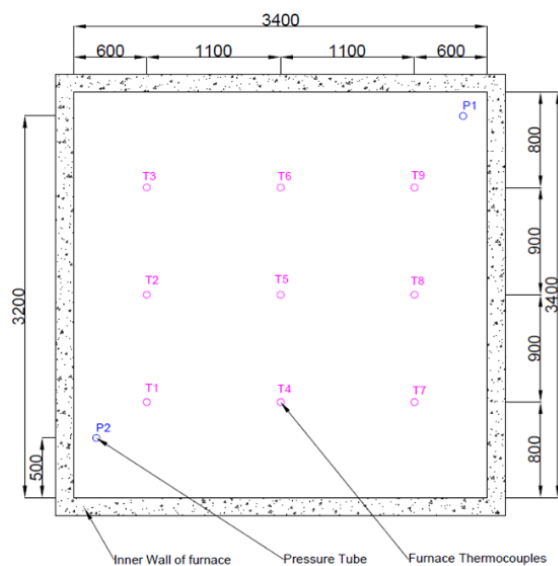


Figure 1 Location of Furnace Thermocouples and Pressure Sensors

8. TEST RESULT

8.1 Pre-test examination and preparation

8.1.1 Gap measurements

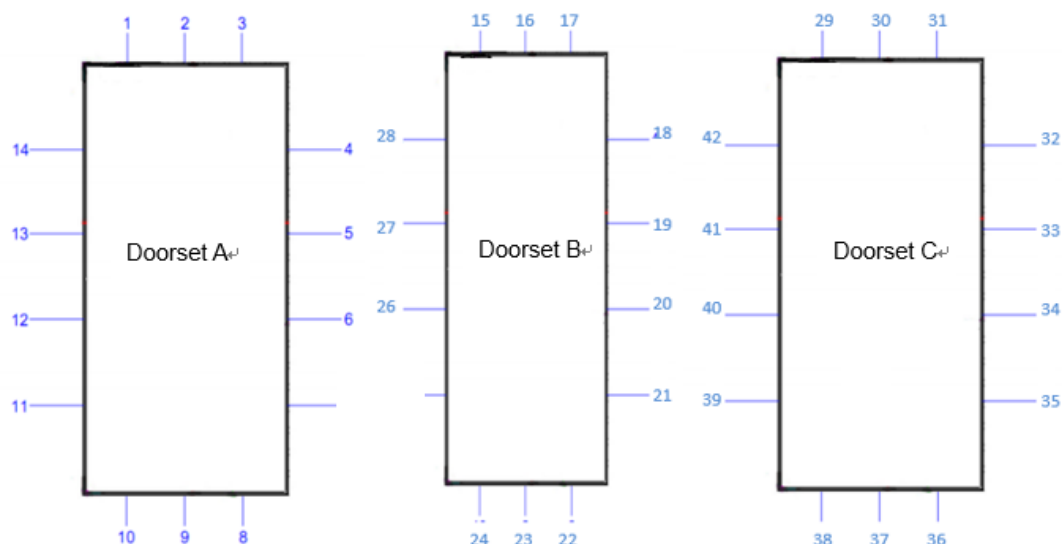


Figure 2 Initial Clearance Measurement Positions (View from unexposed side)

Initial Clearances at positions																	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3.1	3.1	3.0	2.4	2.3	2.2	2.5	2.7	3.6	3.3	3.0	3.0	3.0	3.1	2.5	2.7	3.0	2.3
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
2.8	2.1	2.6	4.0	3.4	4.2	2.6	3.0	4.0	4.0	2.1	2.5	3.1	3.0	3.1	3.5	3.8	2.1
37	38	39	40	41	42	/											
3.9	3.0	3.6	3.2	3.8	3.2												

*Measured from exposed side

All dimensions are in mm.

8.1.2 Closing force measurements

Prior to the fire resistance test, the doorset were subjected to 25 times manually operated opening and closing and measured the closing force according to Clause 10.1.3 of EN 1634-1.

Doorset	Closing force
Single door leaf A	17.4 N
Single door leaf B	16.7 N
Single door leaf C	16.5 N

8.2 Observations

Observations made during the test are given in Table 3 and unless stated were the unexposed face.

Table 3 Observations

Time mm: ss	Observations
0:00	The test commences.
2:15	Smoke released from each edge of doorset B; Each edge of doorsets began to get wet.
3:37	Smoke release increased; Smoke released from each edge of doorset.
13:51	Smoke release decreased; Each edge of doorset B & C began to turn black.
18:34	Each edge of doorset A began to turn black.
68:18	No integrity or insulation failure had occurred. The test was terminated after a period of 68 minutes at request of the sponsor.

8.3 Deflection

The horizontal deflection at recommended positions of the specimen was measured during the test. Recommended positions for measuring deflection were shown in Figure 3. And the test data was shown in below tables.



Figure 3 Positions for measuring horizontal deflection (View from unexposed side)

Time	Deflection at positions (mm)						
Minutes	D1	D2	D3	D4	D5	D6	D7
0	0	0	0	0	0	0	0
10	0	0	5	3	9	10	10
20	0	1	10	5	9	12	15
30	0	3	10	11	16	17	23
40	0	3	10	9	14	25	25
50	0	5	10	15	24	25	31
60	0	4	10	15	24	25	35

Time	Deflection at positions (mm)						
Minutes	D8	D9	D10	D11	D12	D13	D14
0	0	0	0	0	0	0	0
10	-6	0	5	5	10	10	7
20	2	0	9	20	18	17	15
30	5	0	10	21	25	19	15
40	5	1	11	25	30	30	26
50	7	2	9	26	30	30	27
60	7	2	9	26	32	30	32

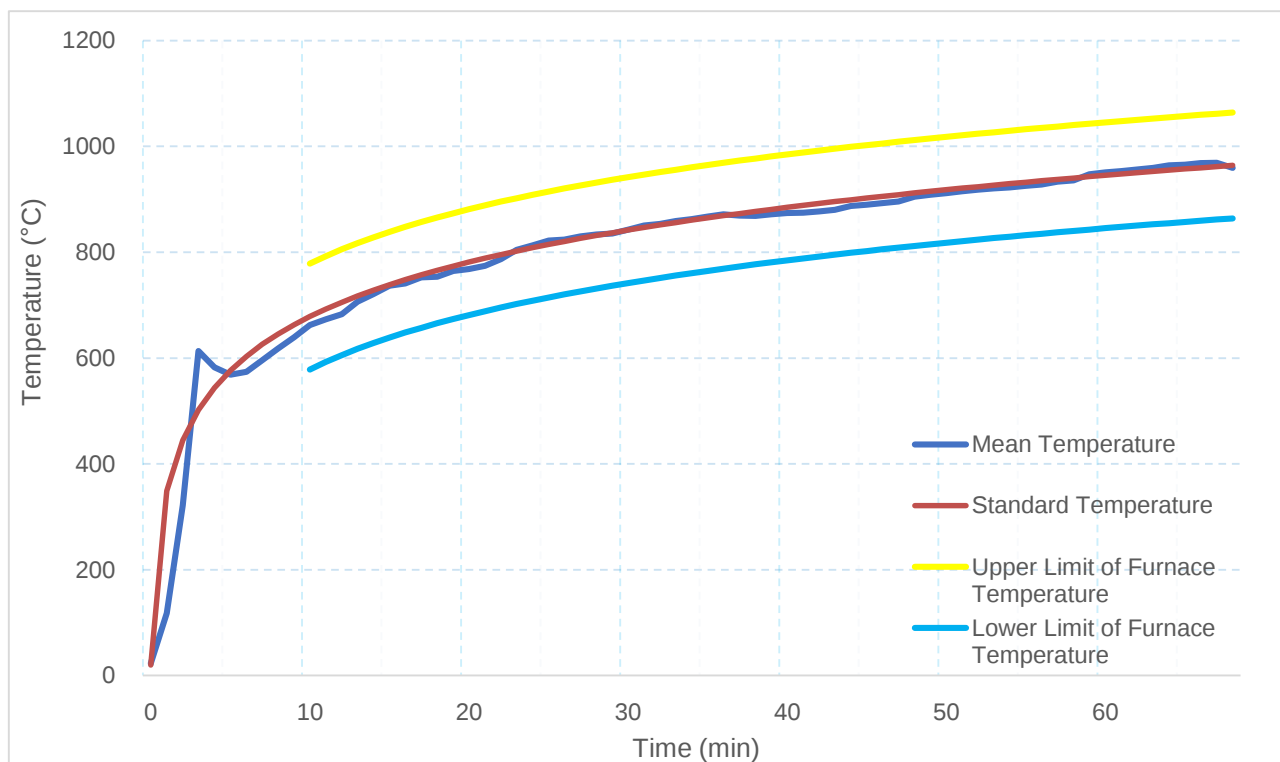
Time	Deflection at positions (mm)						
Minutes	D15	D16	D17	D18	D19	D20	D21
0	0	0	0	0	0	0	0
10	0	2	5	10	-5	1	1
20	0	1	6	15	-1	6	1
30	0	1	8	19	2	10	2
40	0	2	8	20	7	10	6
50	1	2	10	20	12	11	6
60	1	2	10	20	12	15	11

Positive deflections indicate movement towards to the heat condition.

8.4 Temperature Recorded

8.4.1 Furnace temperature

The mean furnace temperature recorded was plotted against time in Graph 1 with the specified curve for comparison.



Graph 1 Furnace Mean Temperature / Time Curve

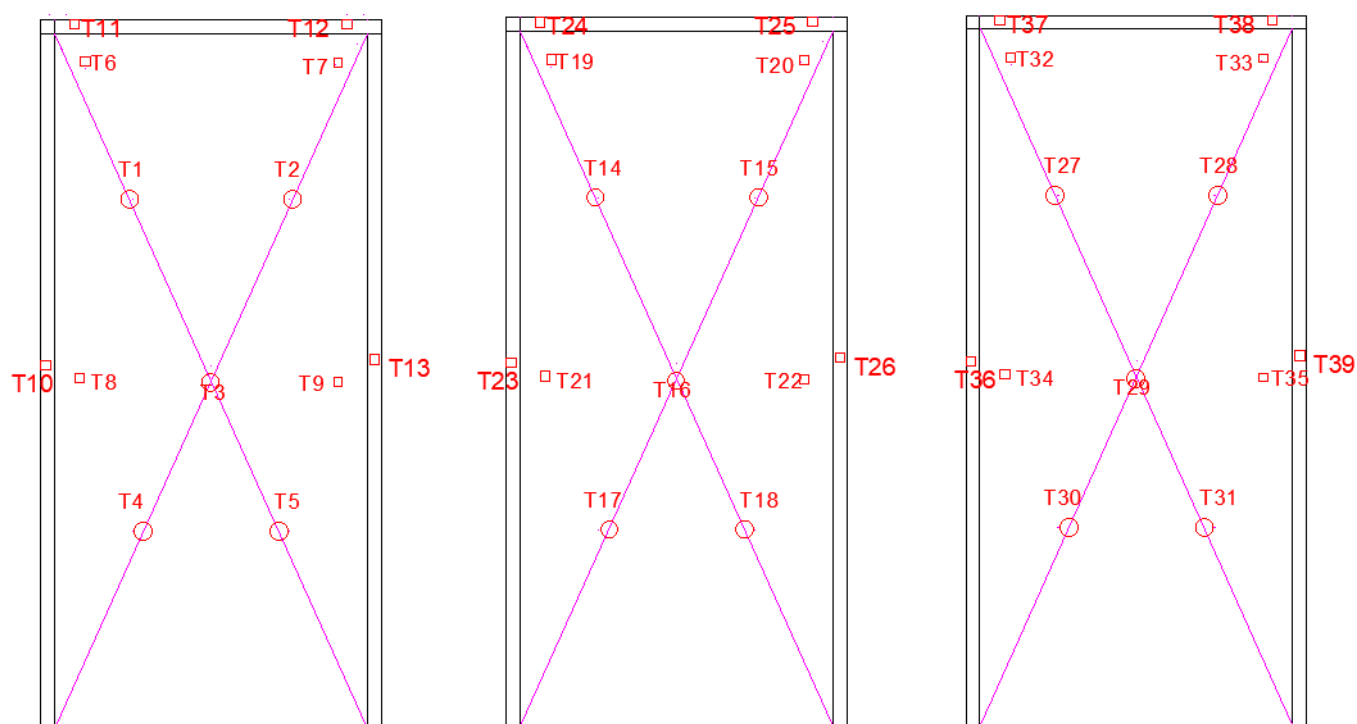
The mean furnace temperature and standard temperature was recorded in Table 4 for comparison.

Table 4 Furnace mean temperature and standard temperature (Unit: °C)

Time Min	Mean Temperature	Standard Temperature	Diff%	Ambient Temperature
0	22.8	20.0	/	20.7
10	662.6	678.4	-5.9	21.0
20	768.3	781.4	-3.4	21.2
30	842.7	841.8	-2.1	21.5
40	873.9	884.7	-1.5	21.6
50	911.6	918.1	-1.5	21.6
60	950.9	945.3	-1.3	21.8
68	959.1	964.1	-1.0	22.0

8.4.2 Unexposed face temperatures

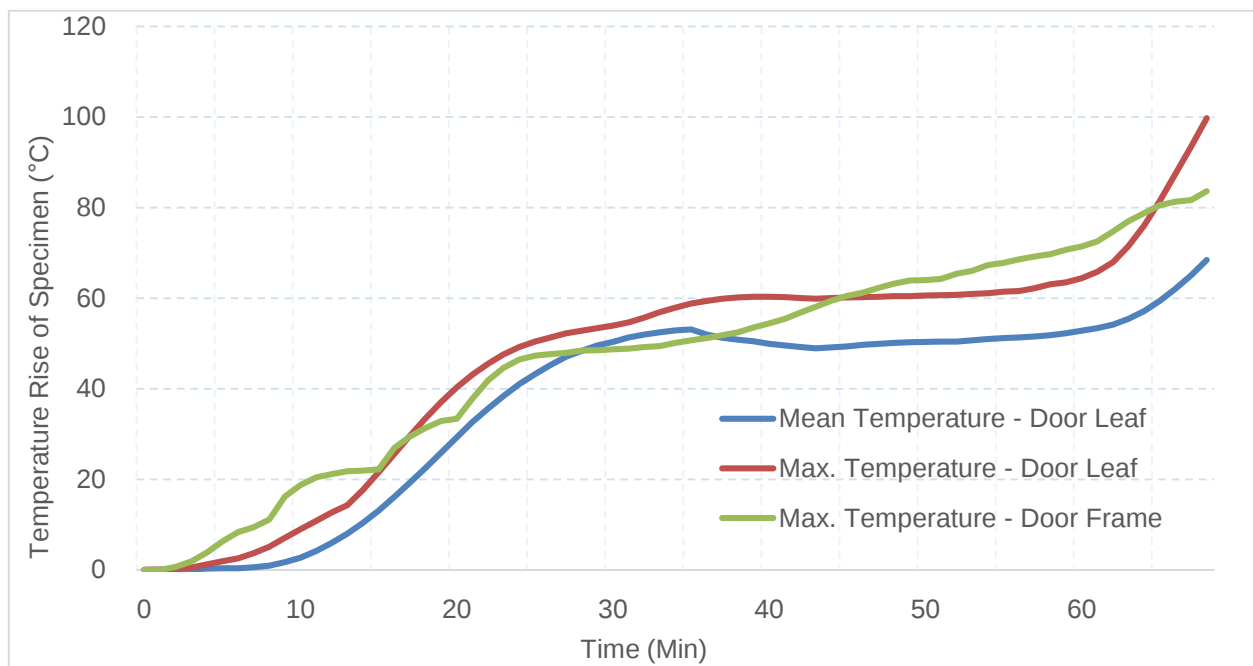
The locations and reference numbers of various unexposed surface thermocouples were shown in Figure 4.



- T1 to T5 : to determine Door Leaf A mean temperature rise.
- T1 to T9 : to determine Door Leaf A maximum temperature rise.
- T10 to T13 : to determine Door Frame A maximum temperature rise.
- T14 to T18 : to determine Door Leaf B mean temperature rise.
- T19 to T22 : to determine Door Leaf B maximum temperature rise.
- T23 to T26 : to determine Door Frame B maximum temperature rise.
- T14 to T18 : to determine Door Leaf C mean temperature rise.
- T19 to T22 : to determine Door Leaf C maximum temperature rise.
- T23 to T26 : to determine Door Frame C maximum temperature rise.

Figure 4 Locations and reference numbers of thermocouple on unexposed surface

The mean and maximum temperatures raise of the unexposed face of the Doorset A were shown in Graph 2a.



Graph 2a The mean and maximum temperatures raises/time curve of Doorset A

The door leaf A mean temperature rise for insulation (140°C rise) was 68.4 °C recorded at 68 min. The door leaf A maximum temperature rise for insulation (180°C rise) was 99.7 °C recorded at 68 min. The door frame A maximum temperature rise for insulation (360°C rise) was 83.6 °C recorded at 68 min.

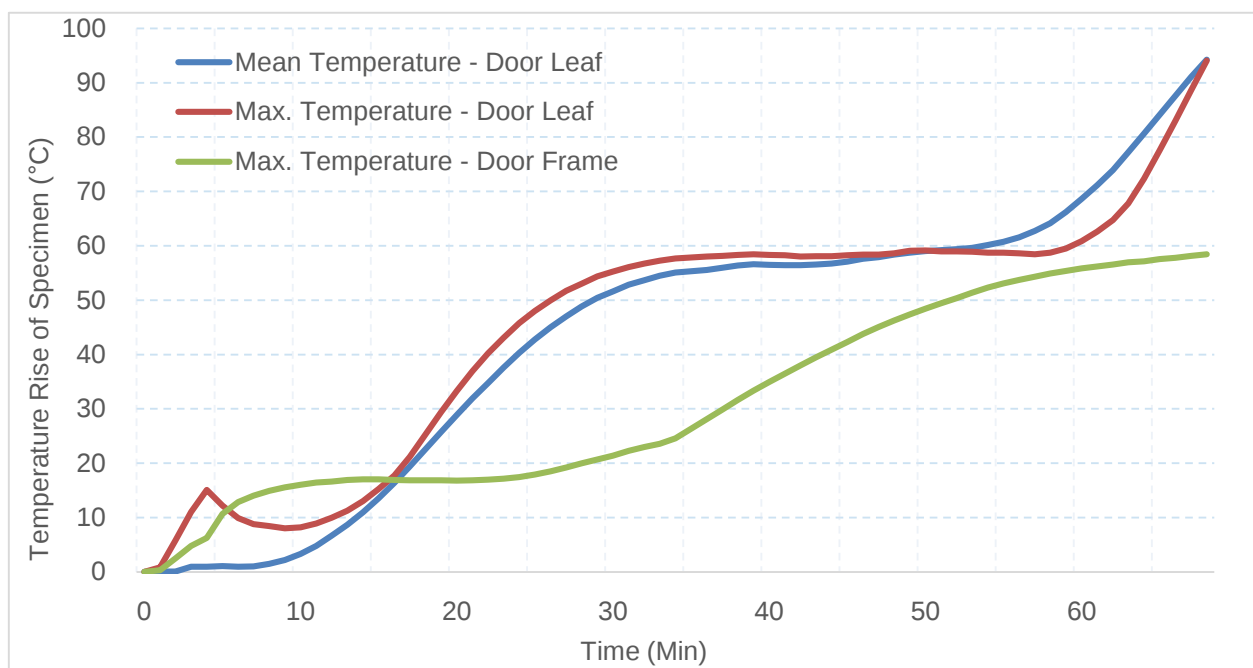
The individual temperatures recorded on the unexposed face of the Doorset A were shown in Table 5a.

Table 5a Individual temperatures recorded on the unexposed face of the Doorset A

Area	Position at door leaf										
Time	T1	T2	T3	T4	T5	T6	T7	T8	T9	Mean	Max
Min											
0	29.2	29.3	29.3	29.4	29.0	28.7	29.1	29.1	29.3	29.2	29.4
10	34.2	32.8	31.1	31.2	30.7	37.7	33.1	31.3	32.0	32.0	37.7
20	69.5	58.6	47.4	61.1	56.1	59.7	63.2	56.0	59.4	58.5	69.5
30	82.9	80.8	68.9	82.9	82.6	81.3	83.1	81.8	78.8	79.6	83.1
40	85.2	85.4	54.4	85.5	85.4	89.0	84.8	87.2	81.3	79.2	89.0
50	88.2	87.0	49.8	86.3	86.6	89.3	87.6	89.0	82.6	79.6	89.3
60	93.6	89.8	50.5	86.3	90.0	92.3	91.4	89.9	84.3	82.0	93.6
68	129.0	104.9	52.5	92.8	109.1	98.4	113.2	93.5	94.3	97.6	129.0

Area	Position at door frame				
Time	T10	T11	T12	T13	Max
Min					
0	27.7	28.2	28.3	27.9	28.3
10	34.5	46.9	33.6	29.9	46.9
20	38.9	55.3	61.6	60.1	61.6
30	50.7	63.9	66.0	76.6	76.6
40	79.7	73.4	69.3	82.4	82.4
50	87.6	82.8	69.2	91.9	91.9
60	88.4	84.4	72.9	99.3	99.3
68	88.9	84.6	74.4	111.5	111.5

The mean and maximum temperatures raise of the unexposed face of the Doorset B were shown in Graph 2b.



Graph 2b The mean and maximum temperatures raises/time curve of Doorset B

The door leaf B mean temperature rise for insulation (140°C rise) was 94.2 °C recorded at 68 min. The door leaf B maximum temperature rise for insulation (180°C rise) was 94.1 °C recorded at 68 min. The door frame B maximum temperature rise for insulation (360°C rise) was 58.4 °C recorded at 68 min.

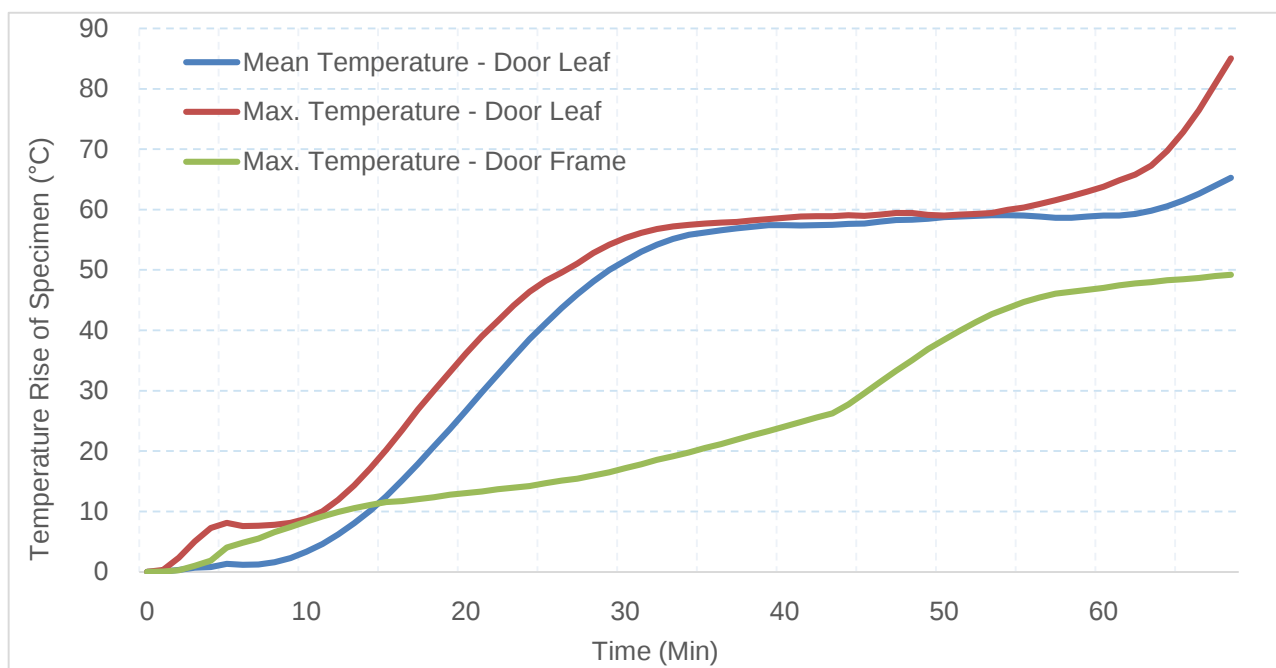
The individual temperatures recorded on the unexposed face of the Doorset B were shown in Table 5b.

Table 5b Individual temperatures recorded on the unexposed face of the Doorset B

Area	Position at door leaf										
Time	T14	T15	T16	T17	T18	T19	T20	T21	T22	Mean	Max
Min											
0	22.3	29.1	29.9	29.0	29.6	32.5	30.1	28.8	29.2	28.0	32.5
10	25.0	32.4	32.5	34.2	32.6	37.1	38.3	31.3	33.0	31.3	38.3
20	57.7	50.4	51.7	70.1	54.3	62.0	57.9	62.1	58.6	56.9	70.1
30	81.5	74.2	75.5	87.6	79.4	84.0	79.7	84.1	81.1	79.6	87.6
40	83.5	79.3	83.9	89.4	86.5	88.5	83.1	87.2	84.9	84.5	89.4
50	86.2	81.1	85.8	92.6	89.3	89.8	85.1	88.0	85.7	87.0	92.6
60	101.0	81.1	84.5	121.8	94.8	92.7	91.0	87.6	86.4	96.6	121.8
68	142.0	86.4	87.9	165.8	129.1	111.7	124.2	94.0	87.0	122.2	165.8

Area	Position at door frame				
Time	T23	T24	T25	T26	Max
Min					
0	28.1	28.4	28.9	27.8	28.9
10	30.0	33.6	45.0	29.0	45.0
20	31.4	35.0	45.7	31.9	45.7
30	36.2	40.4	50.4	45.3	50.4
40	46.2	46.4	56.3	62.7	62.7
50	61.3	53.0	62.3	76.2	76.2
60	76.6	59.5	69.2	83.6	83.6
68	82.4	65.2	78.0	86.2	86.2

The mean and maximum temperatures raise of the unexposed face of the Doorset C were shown in Graph 2c.



Graph 2c The mean and maximum temperatures raises/time curve of Doorset C

The door leaf C mean temperature rise for insulation (140°C rise) was 65.3 °C recorded at 68 min. The door leaf C maximum temperature rise for insulation (180°C rise) was 85.1 °C recorded at 68 min. The door frame C maximum temperature rise for insulation (360°C rise) was 49.2 °C recorded at 68 min.

The individual temperatures recorded on the unexposed face of the Doorset B were shown in Table 5c.

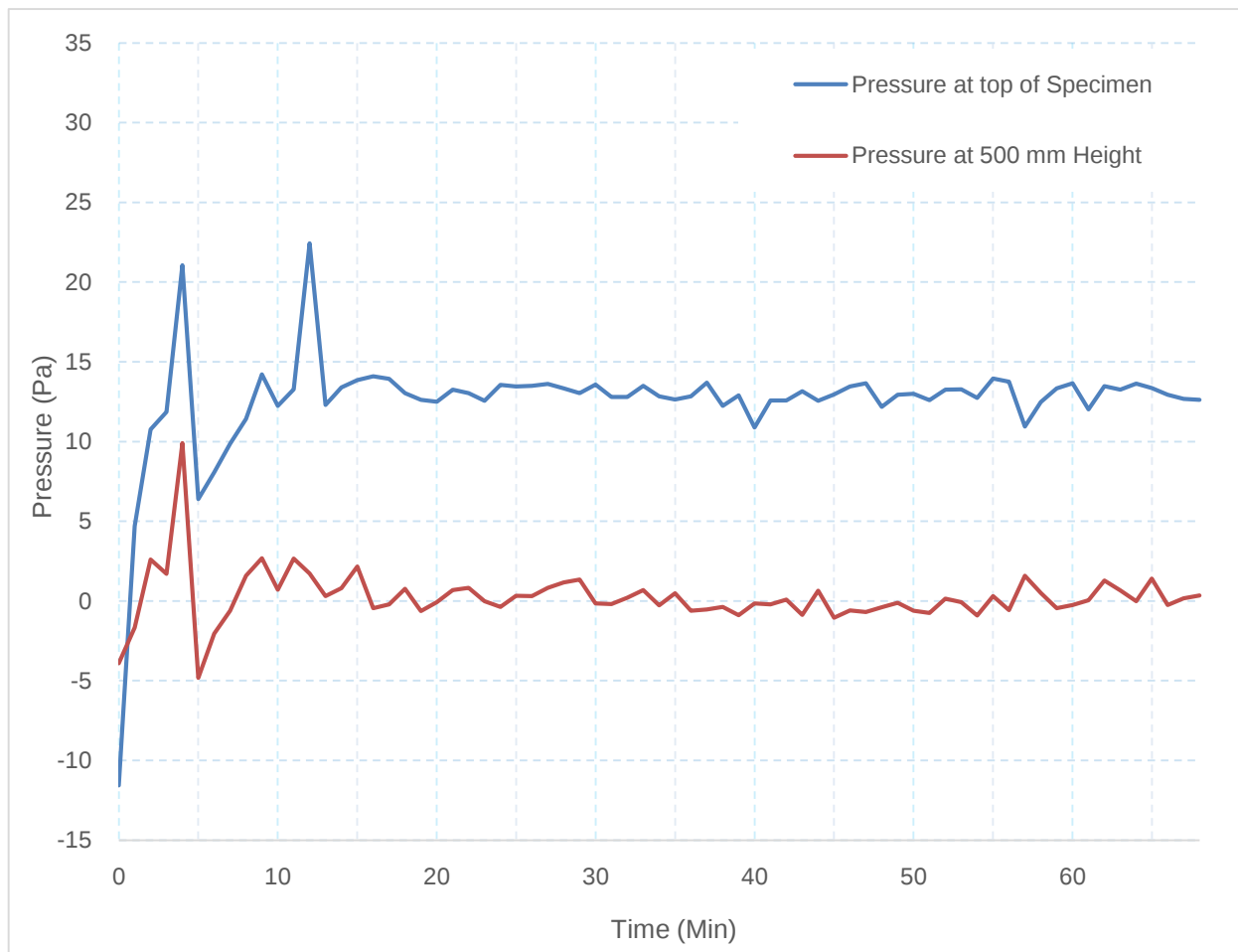
Table 5c Individual temperatures recorded on the unexposed face of the Doorset C

Area	Position at door leaf										
Time	T14	T15	T16	T17	T18	T19	T20	T21	T22	Mean	Max
Min											
0	22.3	29.1	29.9	29.0	29.6	32.5	30.1	28.8	29.2	28.0	32.5
10	25.0	32.4	32.5	34.2	32.6	37.1	38.3	31.3	33.0	31.3	38.3
20	57.7	50.4	51.7	70.1	54.3	62.0	57.9	62.1	58.6	56.9	70.1
30	81.5	74.2	75.5	87.6	79.4	84.0	79.7	84.1	81.1	79.6	87.6
40	83.5	79.3	83.9	89.4	86.5	88.5	83.1	87.2	84.9	84.5	89.4
50	86.2	81.1	85.8	92.6	89.3	89.8	85.1	88.0	85.7	87.0	92.6
60	101.0	81.1	84.5	121.8	94.8	92.7	91.0	87.6	86.4	96.6	121.8
68	142.0	86.4	87.9	165.8	129.1	111.7	124.2	94.0	87.0	122.2	165.8

Area	Position at door frame				
Time	T23	T24	T25	T26	Max
Min					
0	28.1	28.4	28.9	27.8	28.9
10	30.0	33.6	45.0	29.0	45.0
20	31.4	35.0	45.7	31.9	45.7
30	36.2	40.4	50.4	45.3	50.4
40	46.2	46.4	56.3	62.7	62.7
50	61.3	53.0	62.3	76.2	76.2
60	76.6	59.5	69.2	83.6	83.6
68	82.4	65.2	78.0	86.2	86.2

8.5 Furnace Pressure

The furnace pressure was recorded and shown in Graph 4.



Graph 4 Furnace Pressure / Time Curve

9. PERFORMANCE CRITERIA

The performance of the specimen was assessed against the criteria for integrity and insulation in accordance with Clause 11 of EN 1363-1:2020 and Clause 11 of EN 1634-1:2014+A1:2018. The performance criteria for failure were given as follow:

Integrity (E):

These are the times in completed minutes for which the test specimen continues to maintain its separating function during the test without:

- a) causing the ignition of a cotton pad when applied; or
- b) permitting the penetration of a gap gauge as follows:
 - i) whether the 6 mm gap gauge can be passed through the test specimen such that the gauge projects into the furnace, and can be moved a distance of 150 mm along the gap; or
 - ii) whether the 25 mm gap gauge can be passed through the test specimen such that the gauge projects into the furnace.
- c) resulting in sustained flaming for a period of time greater than 10 seconds.

Insulation (I):

This is the time in completed minutes for which the test specimen continues to maintain its separating function during the test without developing temperatures on its unexposed surface which:

- a) increase the average temperature above the initial average temperature by more than 140°C; or
- b1) increase at any location (including the roving thermocouple) above the initial average temperature by more than 180 °C; [Supplementary procedure - Classification I₁]
- b2) increase at perimeter frame member of the doorset or openable window above the initial average temperature by more than 360 °C; and any other location (including the roving thermocouple) above the initial average temperature by more than 180 °C; [Normal procedure - Classification I₂]

The performance criteria 'insulation' shall automatically be assumed not to be satisfied when the 'integrity' criterion ceases to be satisfied.

10. TEST CONCLUSIONS

Product: Fire-resistance doorset with Electronic door lock
Manufactured by Foshan Luokai Locking Technology Company Limited
Model: F7-S70, P1-S70

Had been tested in accordance with:

EN 1634-1:2014/A1:2018 Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware Part 1: Fire resistance test for door and shutter assemblies and openable windows and EN 1363-1:2020 Fire resistance tests Part 1: General Requirements.

by KAS Quality Service (Guangzhou) Co., Ltd. which is an IAS accredited Testing Laboratory (NO. TL-827).

at Chenziwei, Xinsha Village Committee, Muzhou Town, Xinhui District, Jiangmen, Guangdong 529143, China.

Conclusion:

The performance of the specimen was judged against the criteria for integrity and insulation, as required by EN 1634-1:2014/A1:2018, and the results obtained were as follows:

		Doorset A	Doorset B	Doorset B
Integrity (E)	Sustained flaming	68 min, no failure	68 min, no failure	68 min, no failure
	Gap gauge	68 min, no failure	68 min, no failure	68 min, no failure
	Cotton pad	68 min, no failure	68 min, no failure	68 min, no failure
Insulation (I₂)	Door leaf	68 min, no failure	68 min, no failure	68 min, no failure
	Door frame	68 min, no failure	68 min, no failure	68 min, no failure

The test was discontinued after a period of 68 minutes at request of the sponsor.

Limitation of result.

1. The results only relate to the behaviour of the specimen of the element of construction under the particular conditions of test; they are not intended to be the sole criteria for assessing the potential fire performance of the element in use nor do they reflect the actual behaviour in fires.
2. This report details the method of construction, the test conditions and the results obtained when the specific element of construction described herein was tested following the procedure outlined in EN 1363-1, and where appropriate EN 1363-2. Any significant deviation with respect to size, constructional details, edge or end conditions other than those allowed under the field of direction application in the relevant test method was not cover by this report.
3. Because of the nature of fire resistance testing and the consequent difficulty in quantifying the uncertainty of measurement of fire resistance, it is not possible to provide a stated degree of accuracy of the result.
4. Decision rule for statement(s) of conformity is based on Binary Statement for Simple Acceptance Rule ($w=0$) of ILAC G8: 09/2019.

[illegible]

Version: 29-Aug-2021

1 DOOR ELEVATION PULL SIDE
SCALE 1:20 @ A3

2 DETAIL OF DOOR CORE ELEVATION
SCALE 1:20 @ A3

3 SECTION 3
SCALE 1:4 @ A3

4 SECTION 4
SCALE 1:4 @ A3

TTRF_EN 1634-1_2014_c

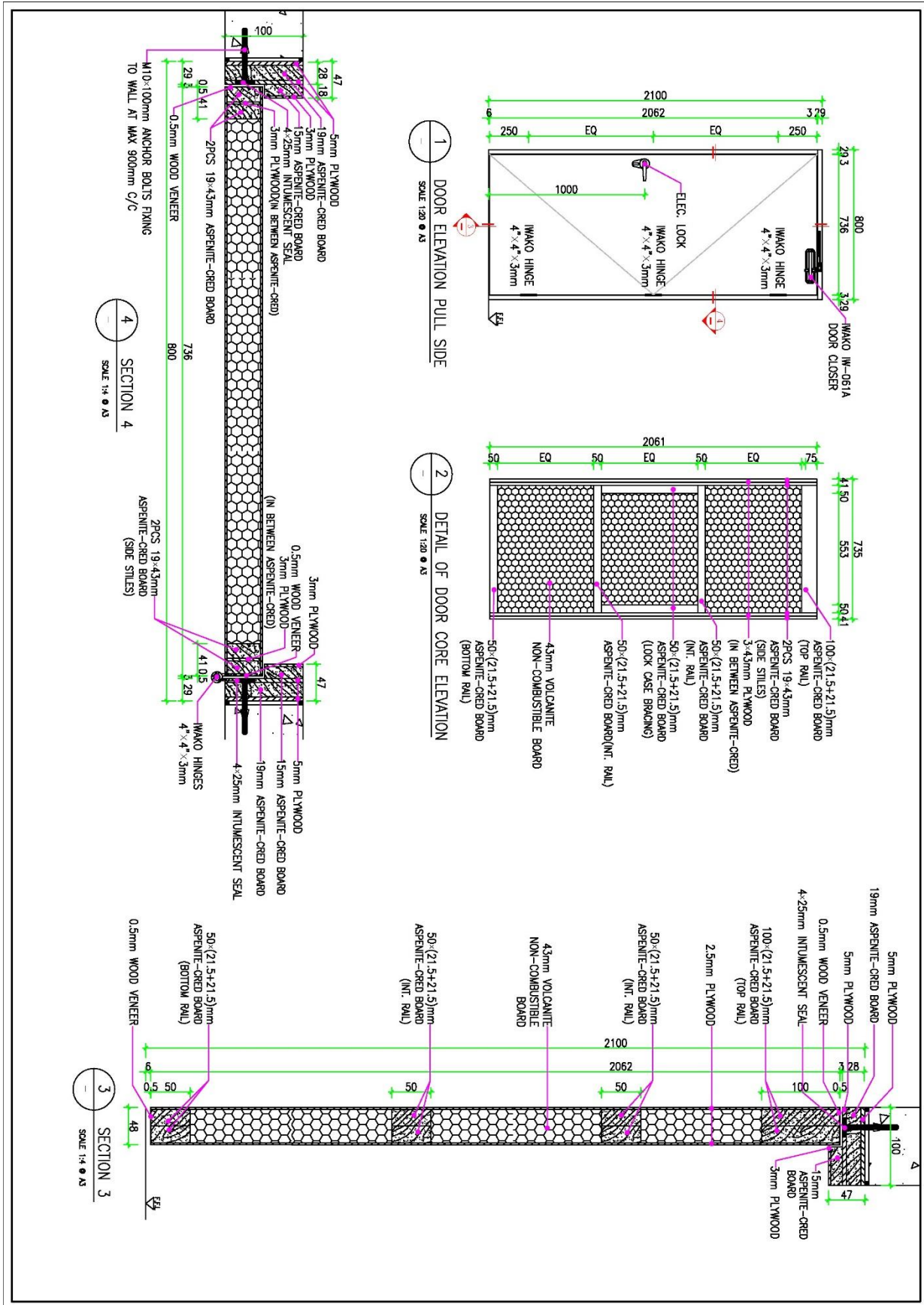
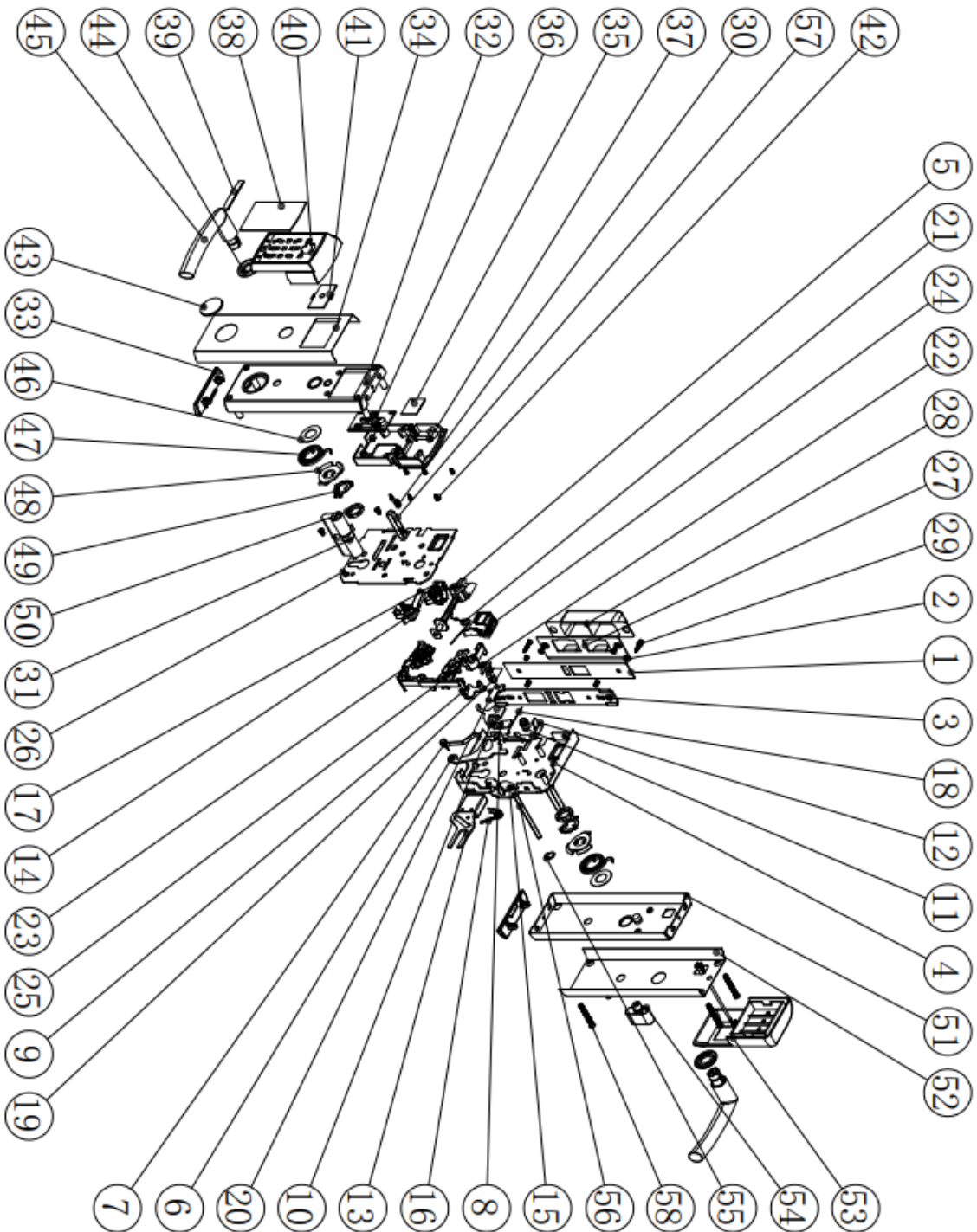
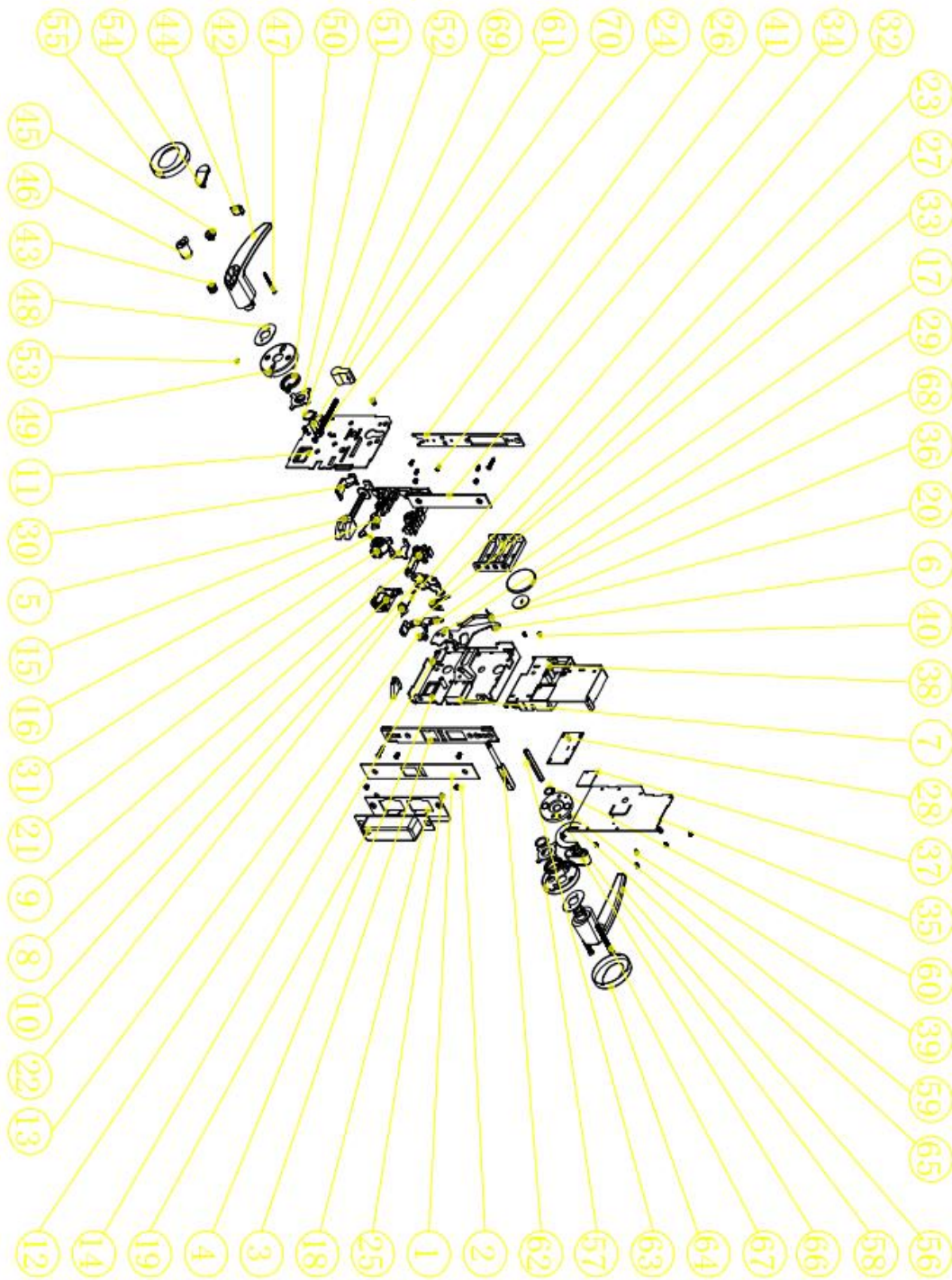


Figure B.2 Doorset C drawing



58	M6X50-C	十字槽沉头机丝	4
57	F1-1-025-0	防轴	2
56	S2-0-01	方轴S2X82	1
55	11-0894-0	轴用弹性挡圈	1
54	F2-2-4-01	旋钮组件	1
53	F1-2-2-00	电池盒盖组件	1
52	F1-2-01	16后罩壳	1
51	F1-2-1-00	后壳组件	1
50	S2-2-014	梅花螺母	2
49	S2-2-013	止动片	2
48	F1-1-05-01	定位卡	2
47	F1-1-024-0	手柄装饰圈	2
46	F1-1-06-01	垫圈	2
45	SB-05-00	05手柄	2
44	F1-1-02-01	手柄装饰圈	2
43	ST2-9X8-P	锁芯盖组件	1
42	F1-1-2-00	十字槽沉头尖尾自攻螺钉	6
41	F1M-01-01	天线板	1
40	F1M-1-01	面板	1
39	F1M-1-05	USB盖组件	1
38	F1M-1-04	感应面板	1
37	F1M-1-02	底座	1
36	F1M-02-01	主电路板	1
35	NB-TTLOCK	蓝牙模块	1
34	F1-1-01-01	前置壳	1
33	F1-1-08-01	装饰帽	2
32	F1-1-1-00	前盖组件	1
31	AN-SD-01	锁芯组件	1
30	M4X8-C	十字沉头机丝	6
29	ST3-8X20-C	十字沉头机丝	4
28	S70-013-01	锁扣盒	1
27	S70-012-01	锁扣板	1
26	S70-010-01	锁盖	1
25	S70-011-01	过线架	1
24	S60-7-00	离合器组件	1
23	S70-8-00	开关支架组件	1
22	S70-07-01	上推板	1
21	S70-014-01	保险舌扭簧	1
20	S70-06-01	下推板	1
19	S70-03-01	保险舌	1
18	S70-015-01	保险舌簧丝	1
17	S70-9-00	内拨叉组件	1
16	S60-019-01	摆臂扭簧	1
15	S70-4-00	摆臂组件	1
14	S70-05-01	方舌拨叉	1
13	S70-5-00	方舌组件	1
12	S70-04-01	保险板	1
11	S70-09-01	鸭套	1
10	S70-08-01	联动板	1
9	S70-6-00	机械起拉板组件	1
8	S70-7-00	解锁板组件	1
7	S60-016-01	方舌扭簧	1
6	S70-01-01	扇形板	1
5	S70-3-00	斜舌组件	1
4	S70-1-1-00	锁壳组件	1
3	S70-1-02	锁舌支架	1
2	M4X5-C	十字沉头机丝	2
1	S70-1-01	锁舌面板	1

Figure B.3 Model 'F7-S70' drawing



70	MSX80-C	十字槽沉头螺丝	1
69	SX-0-09	轴头	1
68	G1-E-10-C001	滚花套	1
67	MSX55-C	十字槽沉头螺丝	2
66	K3-2-02	螺母	1
65	P2-2-02	螺母	1
64	P2-1-01	前盖	1
63	G1-0-09	方轴	1
62	G1-0-1-00	方轴	1
61	G1-0-04	空心方轴	1
60	1-G8894-01	轴用弹性挡圈	1
59	ST3.5*10-C	十字槽沉头自攻螺钉	2
58	P2-2-03	螺母	1
57	P2-2-01	后盖	1
56	G1-4-026	后把手	1
55	P2-1-01	前盖	1
54	G1-3-056	把手	1
53	16-G8894	轴用弹性挡圈	1
52	G1-3-09	定位卡	2
51	G1-3-011	手柄	2
50	P2-1-02	前盖	1
49	G1-3-01	把手	2
48	MSX5-P	十字槽沉头螺丝	1
47	P3-1-03	轴头	1
46	G1-3-06	轴头	1
45	G1-3-07	轴头	1
44	G1-3-08	轴头	1
43	G1-3-09	轴头	1
42	G1-3-016	轴头	1
41	ST2.9*8-CX0	十字槽沉头自攻螺钉	1
40	ST2.6*6-CX	十字槽沉头自攻螺钉	1
39	ST2.9*6-CX0	十字槽沉头自攻螺钉	1
38	G1-1-036	分体套	1
37	NB-T110CK	分体套	1
36	FLM-01-01	分体套	1
35	G1-1-04-C	分体套	1
34	G1-1-02	分体套	1
33	ST0-01-01	保险丝	1
32	ST0-015-01	保险丝	1
31	ST0-9-00	过线架	1
30	ST0-011-01	过线架	1
29	ST0-08-01	过线架	1
28	PLM-02-01	主电源板	1
27	G1-1-11	分体套	1
26	G1-1-01	分体套	1
25	ST3.8*20-C	十字槽沉头自攻螺钉	4
24	MSX8-C	十字槽沉头螺丝	7
23	S60-019-01	螺母	1
22	S70-09-01	螺母	1
21	S70-6-00	螺母	1
20	S60-016-01	螺母	1
19	S70-013-01	螺母	1
18	S70-012-01	螺母	1
17	S70-7-00	螺母	1
16	S70-014-01	螺母	1
15	S70-8-00	螺母	1
14	S70-06-01	螺母	1
13	S70-07-01	螺母	1
12	S70-03-01	螺母	1
11	S70-010-01	螺母	1
10	S70-4-00	螺母	1
9	S70-05-01	螺母	1
8	S60-7-00	螺母	1
7	S70-5-00	螺母	1
6	S70-01-01	螺母	1
5	S70-3-00	螺母	1
4	S70-1-1-00	螺母	1
3	S70-1-02	螺母	1
2	MSX5-C	十字槽沉头螺丝	4
1	S70-1-01	螺母	1

Figure B.4 Model 'P1-S70' drawing

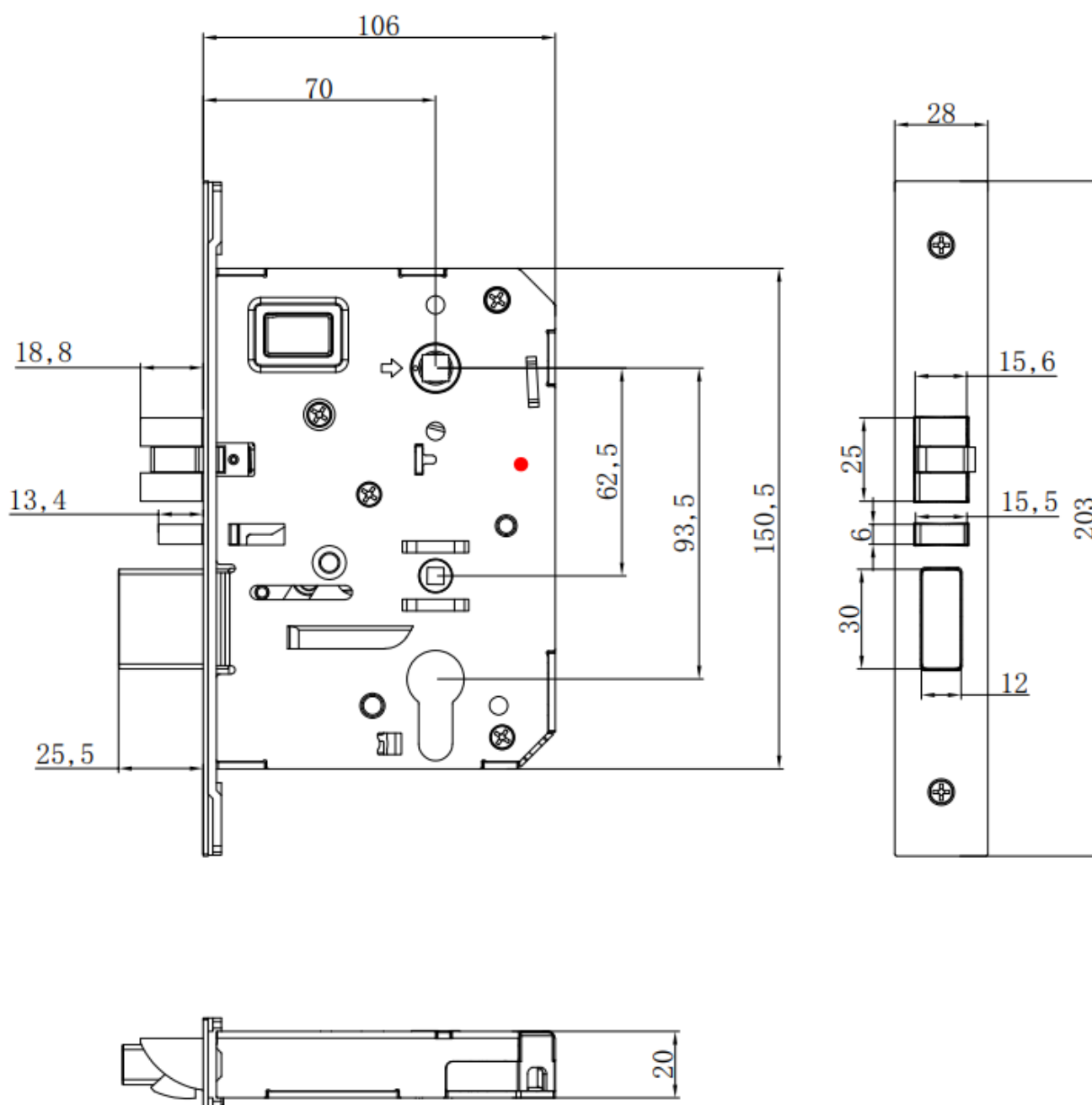
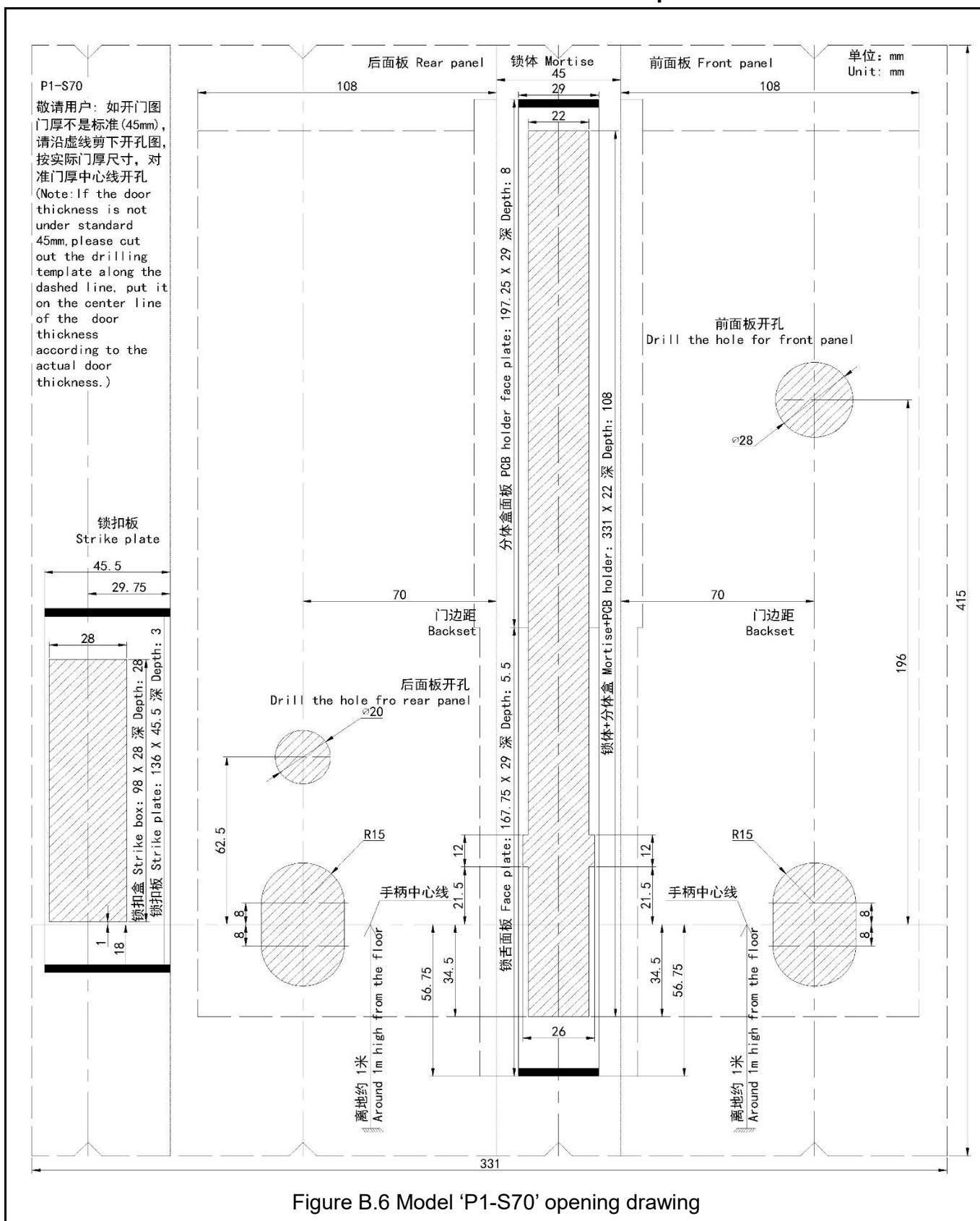


Figure B.5 Lock body drawing



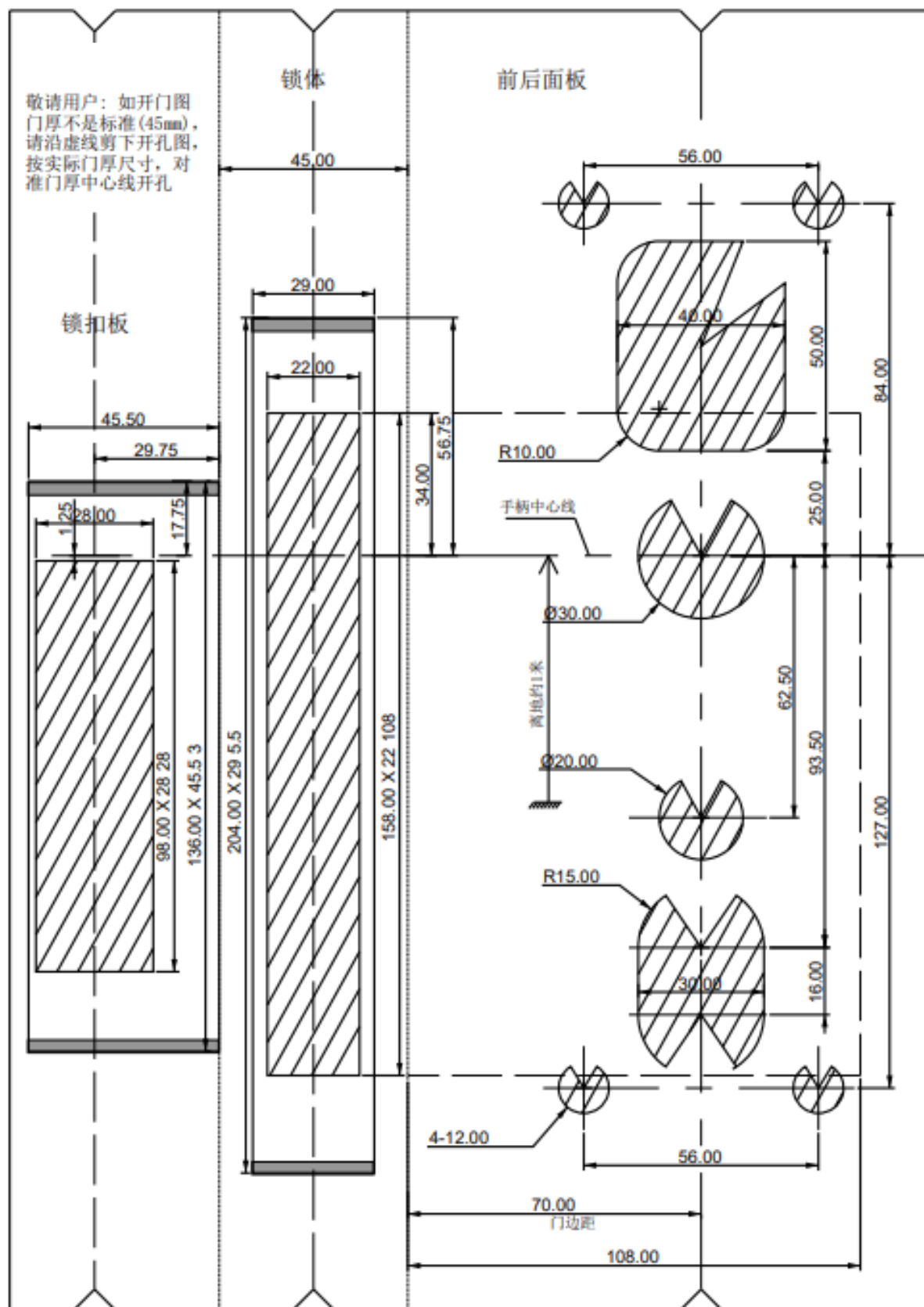
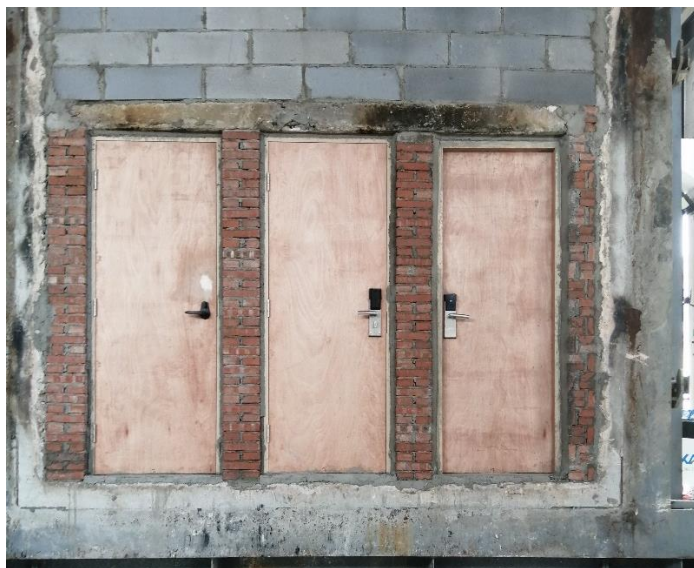


Figure B.7 Model 'F7-S70' opening drawing

APPENDIX C TEST PHOTOGRAPHS



Unexposed face (Test before)



Exposed face (Test before)



After 10 min (Unexposed Side)



After 20 min (Unexposed Side)



After 30 min (Unexposed Side)



After 40 min (Unexposed Side)



After 50 min (Unexposed Side)



After 60 min (Unexposed Side)



After 68 min (Unexposed Side)



After 68 min (Exposed Side)

REVISION HISTORY

Revision No.	Date	Changes	Author	Reviewer
Original	5/25/2024	First issue	Singh Zhang	Credy Chen
Revision 1	5/29/2024	Revised typo	Singh Zhang	Credy Chen

The End of Report