

GUANGDONG BE- TECH SECURITY SYSTEMS LIMITED

TEST REPORT

SCOPE OF WORK

EN 1634-1 (2014) TESTING ON ELECTRONIC LOCK, MODEL OF G7MT-AN2

REPORT NUMBER

180629016SHF-BP-2

TEST DATE

2018/8/29

ISSUE DATE

2018/9/21

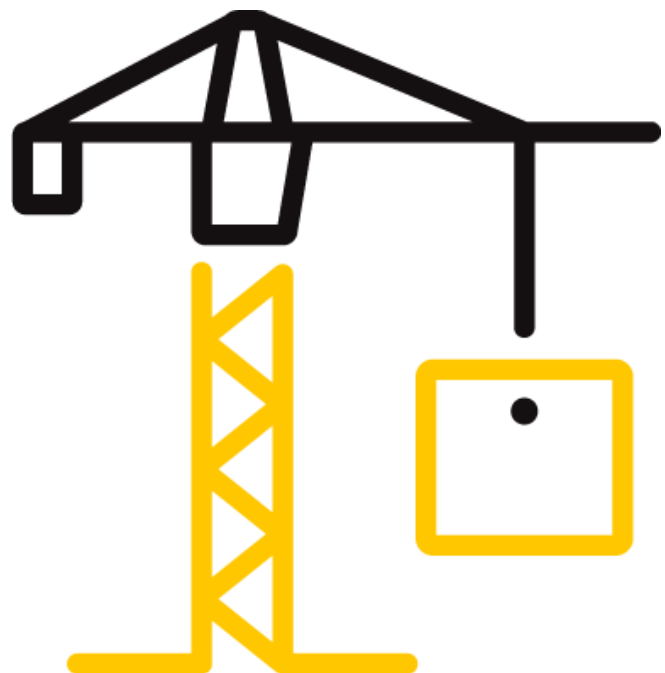
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DOCUMENT CONTROL NUMBER

LFT-APAC-SHF-OP-10f

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Issue Date: 2018/9/21

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REPORT ISSUED TO

GUANGDONG BE-TECH SECURITY SYSTEMS LIMITED

NO.17, Keyuan 3 Road, Ronggui, Shunde High-Tech Zone Foshan

SECTION 1

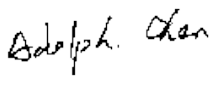
SCOPE


Intertek has conducted an evaluation for GUANGDONG BE-TECH SECURITY SYSTEMS LIMITED to determine the fire resistance characteristics of Electronic Lock, Model of G7MT-AN2. This test was designed to demonstrate evaluation on the Electronic Lock of twelve types including Model G5MT-AN2, Model G5FK-AN2, Model G5FM-AN2, Model G6MT-AN2, Model G6FK-AN2, Model G6FM-AN2, Model G7MT-AN2, Model G7FT-AN2, Model G8MT-AN2, Model G8FT-AN2, Model G9FT-AN2 and Model G10FT-AN2. This evaluation began on June 29, 2018 and was completed on September 05, 2018. The test was conducted on August 29, 2018.

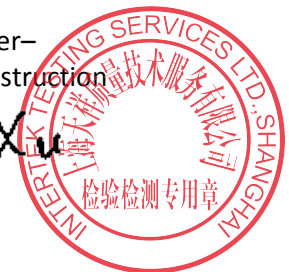
The test was conducted in accordance with EN 1634-1:2014, Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 1: Fire resistance test for door and shutter assemblies and openable windows.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

For INTERTEK B&C:

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SECTION 2

SUMMARY OF TEST RESULTS

Product Name: Electronic Lock

Series/Model: G5MT-AN2, G5FK-AN2, G5FM-AN2, G6MT-AN2, G6FK-AN2, G6FM-AN2, G7MT-AN2, G7FT-AN2, G8MT-AN2, G8FT-AN2, G9FT-AN2 and G10FT-AN2

The test assembly satisfied the performance requirements for the following periods:

PERFORMANCE CRITERIA	RESULTS
Integrity	Sustained flaming 68 minutes
	Gap gauge 68 minutes
	Cotton pad 68 minutes
Insulation	68 minutes

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

SECTION 3

TEST METHOD

The specimen was evaluated in accordance with the following:

EN 1634-1:2014, *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*

EN 1363-1:2012, *Fire resistance test – Part 1: General Requirements*

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SECTION 4

MATERIAL SOURCE/INSTALLATION

Test specimens were provided to Intertek directly by the client and were not independently selected for testing. Test specimens were received at the Evaluation Center on June 28, 2017.

Electronic Lock, Model of G7MT-AN2 was tested. The specification of Model G7MT-AN2 was provided by the client.

A description of the test assembly is given in the table below. The description of the specimen is based on a survey of the specimen and information provided by the sponsor of the test. All values quoted below are nominal, unless tolerances are given.

TESTED ASSEMBLY DESCRIPTION									
Door	Type	Single Leaf Single Action Swing Timber Composite Fire Door Assembly							
	Nominal Size		836	mm wide	2040	mm high	55.5	mm thick	
	Facing		0.25 mm oak veneer, density of 735 kg/m ³						
	Sub-facing		2.5 mm MDF (medium density fiberboard), density of 816 kg/m ³						
			5 mm Magnesium oxide board, density of 1339 kg/m ³						
	Core	Material	MgO fire core board						
		Thickness	40 mm			Density:		452 kg/m ³	
	Rail		60 mm x 30 mm solid meranti wood, density of 731 kg/m ³						
Stile		60 mm x 30 mm solid meranti wood, density of 731 kg/m ³							
Frame	Nominal Size		906	mm wide	2080	mm high	140	mm thick	
	Material		Facing: 5 mm Magnesium oxide board, density of 1339 kg/m ³						
			Fire retardant meranti wood, density of 731 kg/m ³						
Hardware	Lock (Test Specimen)	Lock type	Electronic Lock, Model: G7MT-AN2						
		Lock case size	177 mm x 98 mm x 20 mm						
		Backset	59.5	mm	Latch throw:		14.3	mm	
		Latch Operation	Latch: Engaged			Dead bolt:		Disengaged	
		Bedding material	Lock case is protected by 2 mm thick fireproof board (material is sodium silicate with fiberglass mesh)						

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Hardware	Hinge	Material and Type	Stainless Steel, Model: FRH443
		Size	4" x 4" x 3 mm, Quantity: 3
		Bedding material	Hinge is protected by 2 mm thick fireproof board (material is sodium silicate with fiberglass mesh)
	Door closer		Model: 603
			Installation: Surface mounted on exposed side of door leaf
Intumescent seal	Type 1	Model	RP2004W2100, 20mm*4mm
		Location	One strip is at right, left and top edge of door leaf. Two strips are at right, left and top of door frame.

The sample ID number assigned by the test lab is S180629016SHF.002.

Documents and drawings of twelve models of Electrical Lock, G5MT-AN2, G5FK-AN2, G5FM-AN2, G6MT-AN2, G6FK-AN2, G6FM-AN2, G7MT-AN2, G7FT-AN2, G8MT-AN2, G8FT-AN2, G9FT-AN2 and G10FT-AN2 were checked, and found that these Electrical Lock have same lock case of model of AN2 and cylinder. The differences between them are the escutcheon and function. Model G7MT-AN2 with front escutcheon, model of G7MT and back escutcheon, model of BZ-G5A3MT-2-00 was selected to test to cover the other models.

The Document Register List, drawing of the fire door assembly and test wall construction can be found in Section 6, 7 and 8 respectively.

A comprehensive drawings and Installation Instructions of Electronic Lock, Model G5MT-AN2, Model G5FK-AN2, Model G5FM-AN2, Model G6MT-AN2, Model G6FK-AN2, Model G6FM-AN2, Model G7MT-AN2, Model G7FT-AN2, Model G8MT-AN2, Model G8FT-AN2, Model G9FT-AN2 and Model G10FT-AN2, are maintained on Intertek file.

The test assembly was installed in a steel restraint frame. The test door was built into a concrete masonry unit partition, with fully mortared joints. The test assembly moved in front of the furnace for the fire exposure. Prior to the commencement of the EN 1634-1 fire test, the specimen to be test was checked for operability in the fire test frame by operating from fully closed to fully open, for 25 cycles. The test measurement data was shown in Section 9.

The test door was oriented to open into the furnace.

The nominal dimensions of the test wall were 3 m high by 3 m wide.

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After positioning the assembly frame over the furnace opening, the burners were ignited and the timer was started. Temperatures within the furnace were monitored using thermocouples and the data was recorded. The burners were controlled to keep the furnace temperatures within the allowable limits specified in the test standards. After 5 minutes, the furnace pressure was adjusted so that the neutral plane was established at a maximum of 500 mm above notional floor level. Periodic observations were made of the surfaces of the test assembly during the fire resistance test.

Door deflection relative to the frame, where applicable, was monitored throughout the test. Position for measurement of deflection and unexposed temperature was presented in the drawing of Section 9.

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SECTION 5 TEST RESULTS

Integrity

The assembly withstood the fire resistance test without passage of flame or gases hot enough to ignite cotton waste for 68 minutes. No through openings or penetrations were evident at this 68 minutes fire exposure portion of the test and the door latch remained engaged to the strike. During this 68 minutes fire exposure period no significant flaming was observed on the unexposed face of the assembly.

This assembly therefore met the criteria of the test standards for integrity performance of 68 minutes.

Insulation

Transmission of heat through the assembly during the fire resistance test of 68 minutes did not raise the average temperature on the unexposed surface by more than 140°C above its initial value, and did not raise the maximum temperature on the unexposed surface by more than 180°C above the initial mean unexposed face temperature. In addition, the transmission of heat through the assembly did not raise the maximum temperature of the unexposed surface of the frame by more than 360°C for 68 minutes.

This assembly therefore met the criteria of the test standards for insulation performance of 68 minutes.

A full set of test data is included in Section 10, and photographs have been presented in Section 11.

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SECTION 6

DOCUMENT REGISTER LIST

Model No.	Document Ref.	Document Title	Issue	Date
G5MT-AN2, G5FK-AN2, G5FM-AN2	AN2-00D Mortise Exploded Diagram	AN2-00D	10/2017	11/2017
	BZ-G5FK-1-00 Front panel module	BZ-G536FK-1-00	10/2017	11/2017
	BZ-G5FM-1-00 Front panel module	BZ-G536FM-1-00	10/2017	11/2017
	BZ-G5MT-1-00 Front panel module	BZ-G536MT-1-00	10/2017	11/2017
	BZ-G5MT-2-00 Back panel module (Dry cell,anti hooking)	BZ-G536MT-2-00	10/2017	11/2017
	BA6289(161010)	BA6289(161010).SCH	10/2017	11/2017
	G6MT-Z01A(E150121)	G6MT-Z01A(E141115).SCH	10/2017	11/2017
	G6MT-Z01A(E150825)	6MT-Z01A(E150825)	10/2017	11/2017
G6MT-AN2, G6FK-AN2, G6FM-AN2	AN2-00D Mortise Exploded Diagram	AN2-00D	10/2017	11/2017
	BZ-G6FK-1-00 Front panel module	BZ-G636FK-1-00	10/2017	11/2017
	BZ-G6FM-1-00 Front panel module	BZ-G636FM-1-00	10/2017	11/2017
	BZ-G6MT-1-00 Front panel module	BZ-G636MT-1-00	10/2017	11/2017
	BA6289(161010)	BA6289(161010).SCH	10/2017	11/2017
	G6MT-Z01A(E150121)	G6MT-Z01A(E141115).SCH	10/2017	11/2017
	G6MT-Z01A(E150825)	6MT-Z01A(E150825)	10/2017	11/2017

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Model No.	Document Ref.	Document Title	Issue	Date
G7MT-AN2, G8MT-AN2	AN2-00D Mortise Exploded Diagram	AN2-00D	10/2017	11/2017
	BZ-G7MT-1-00(G7 Front panel module) 2017.10.11-Model	BZ-G736MT-1-00	10/2017	11/2017
	BZ-G8MT-1-00(Front panel module) 2017.10.11-Model	BZ-G836MT-1-00	10/2017	11/2017
	BA6289(161010)	BA6289(161010).SCH	10/2017	11/2017
	G6MT-Z01A(E150121)	G6MT-Z01A(E141115).SCH	10/2017	11/2017
	G6MT-Z01A(E150825)	G6MT-Z01A(E150825)	10/2017	11/2017
G7FT-AN2, G8FT-AN2, G9FT-AN2, G10FT-AN2	AN2-00D Mortise assembly Exploded Diagram	AN2-00D	10/2017	11/2017
	BZ-G7FT-1-00(G7 Front panel module) 2017.10.11-Model	BZ-G736FT-1-00	10/2017	11/2017
	BZ-G8FT-1-00(Front panel module) 2017.10.11-Model	BZ-G836FT-1-00	10/2017	11/2017
	BZ-G9FT-1-00 (Front body assembly) Exploded Diagram 2017.10.11-Model	BZ-G936FT-1-01	10/2017	11/2017
	BZ-G10FT-1-00 (Front body assembly) Exploded Diagram 2017.10.11-Model	BZ-G1036FT-1-02	10/2017	11/2017
	BA6289(161010)	BA6289(161010).SCH	10/2017	11/2017
	G6MT-Z01A(E150121)	G6MT-Z01A(E141115).SCH	10/2017	11/2017
	G6MT-Z01A(E150825)	G6MT-Z01A(E150825)	10/2017	11/2017

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Note:

It is a mandatory requirement that Intertek is informed of any modifications or changes to the following:

- Product submitted for approval or that has been approved
- Manufacturing process
- Manufacturing address
- Materials
- Materials supplier
- Documents recorded within this register

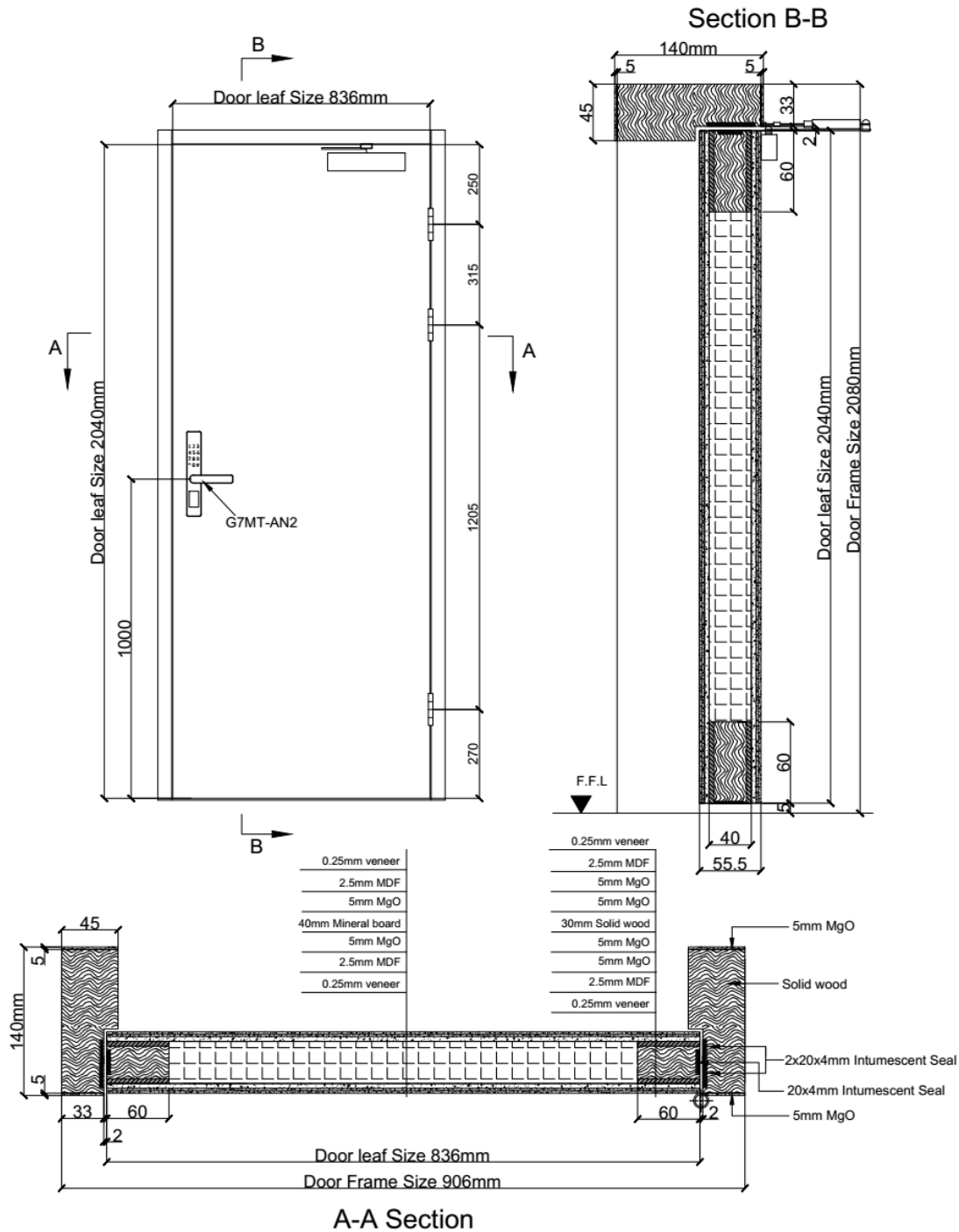
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SECTION 7

FIRE DOOR ASSEMBLY DRAWING



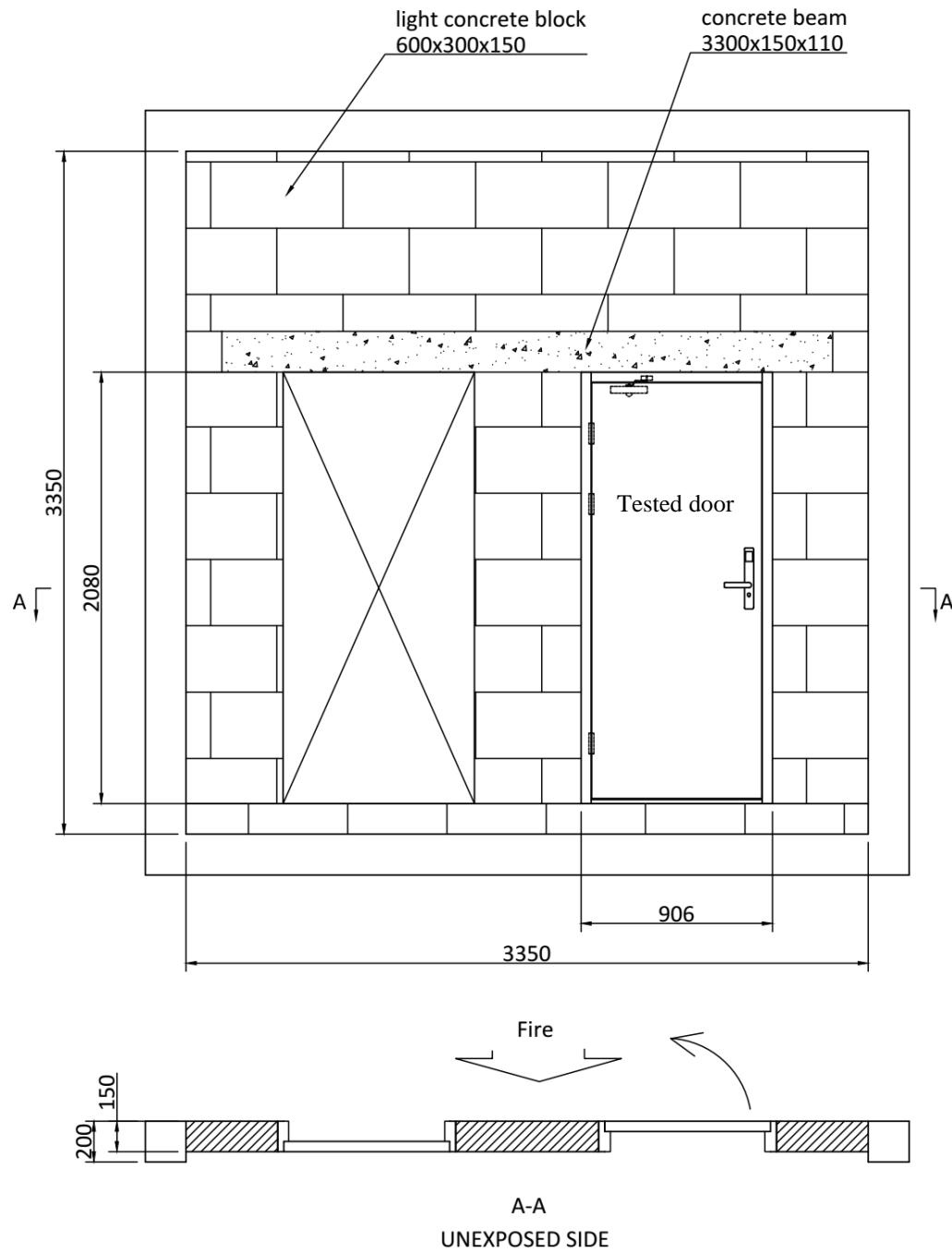
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SECTION 8

TEST WALL CONSTRUCTION



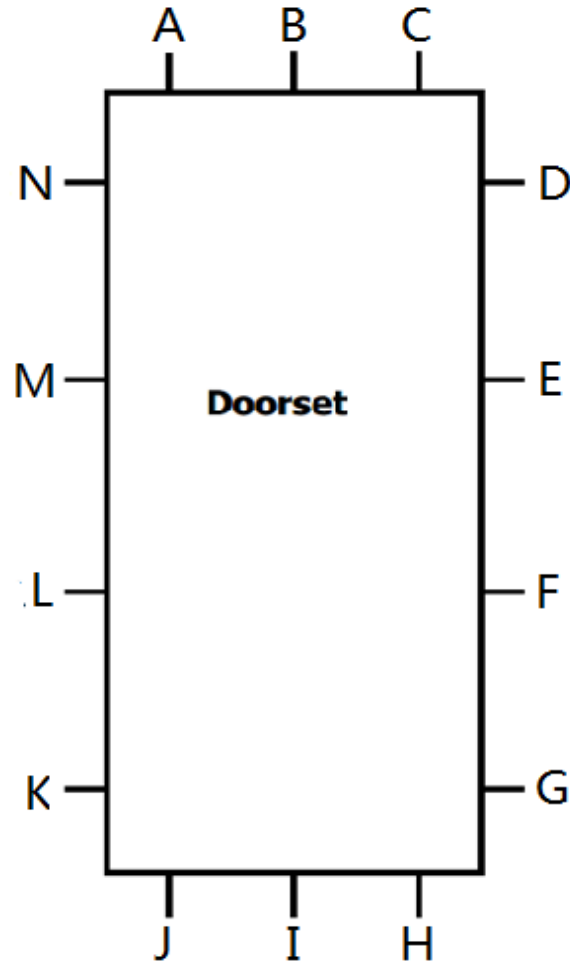
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SECTION 9

TEST MEASUREMENT DATA



EXPOSED SIDE

Clearance dimension in mm at each position													
A	B	C	D	E	F	G	H	I	J	K	L	M	N
1.5	1.5	2.0	0.8	0.8	1.0	2.2	6.8	6.4	6.1	0.8	1.0	0.8	1.8

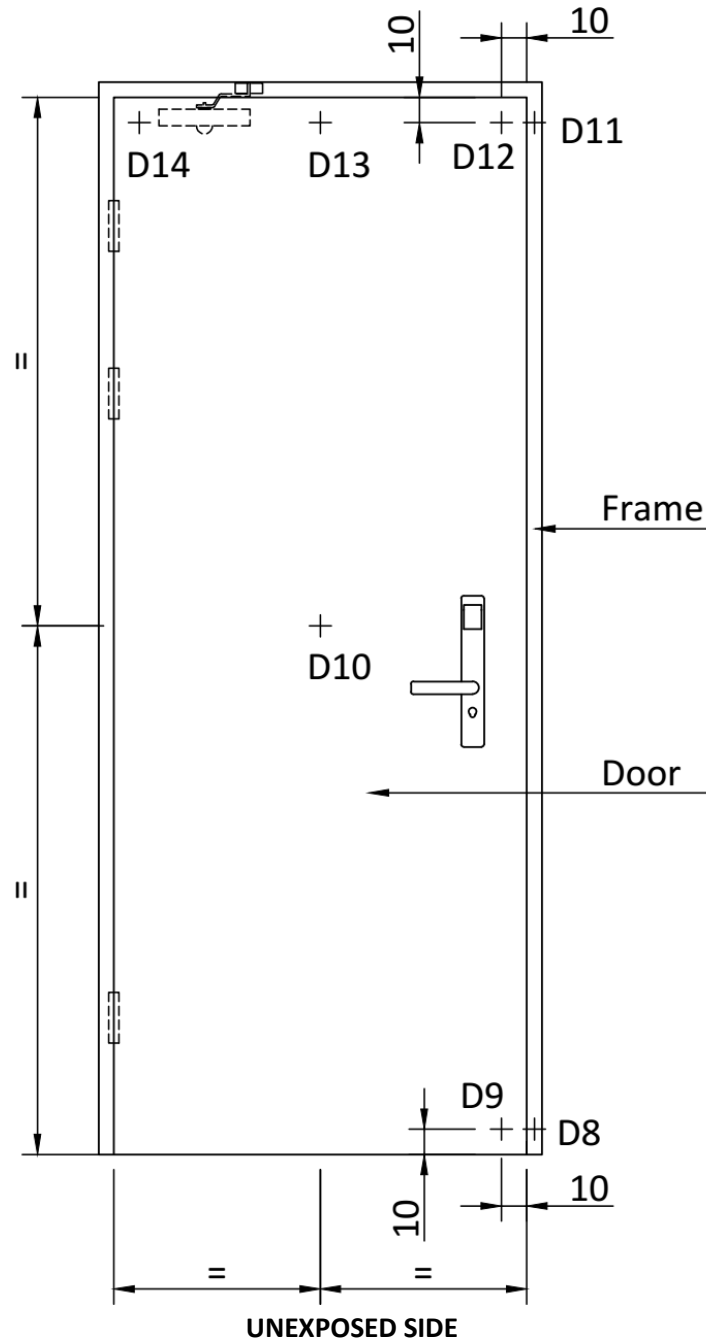
DO NOT SCALE

DOOR ASSEMBLY INITIAL CLEARANCES

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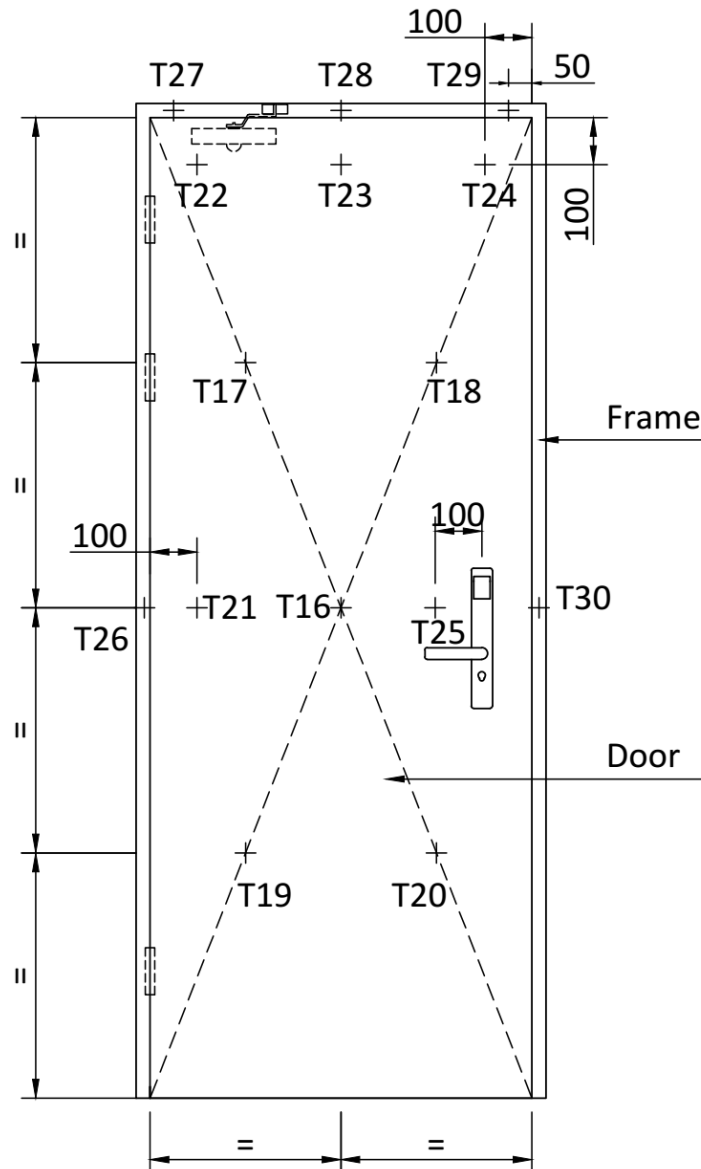


POSITION FOR MEASUREMENT OF HORIZONTAL DEFLECTION

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POSITION FOR MEASUREMENT OF UNEXPOSED TEMPERATURE

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SECTION 10 TEST DATA

Standards: EN 1634-1:2014, 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

Procedure: Part 1: Fire resistance test for doors, shutters and openable windows

Conditioning: According to EN1363-1, Section 8

Equipment:

ITEM	ID
Vertical furnace	SH1097
Furnace pressure gauge	SH1097-15
Test Clock	SH1042
Furnace thermocouple	SH1097-4~6
Ambient temperature gauge	SH1097-11
Unexposed thermocouple	SH1097-12~14
Clearance Measurements	SH1061
Displacement Measurements	SH1163
Dynamometer	SH1066

Heating Conditions: According to EN 1363-1, Section 5.1

Pressure Conditions: According to EN1363-1, Section 5.2

Ambient Conditions: 10~40°C according to EN 1363-1, Section 5.6

Test Specimen: According to EN 1634-1, Section 6

Installation of test specimen: According to EN 1634-1, Section 7

Furnace Thermocouples: According to EN 1634-1, Section 9.1.1

Unexposed Face Thermocouples: According to EN 1634-1, Section 9.1.2

Thermocouple Pads: Length and width 30 mm, thickness 2.0 ± 0.5 mm, dry density 900 ± 90 kg/m²

Pressure Measurements: According to EN 1634-1, Section 9.2

Deflection Measurements: According to EN 1634-1, Section 9.3

Pre-test Examination: According to EN 1634-1, Section 10.1

Test Procedure: According to EN 1634-1, Section 10.2

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Test Observations:

Time		All observations are from the unexposed face unless noted otherwise.
Mins	Secs	
00	00	Test starts.
01	26	Smoke issues from the top edge of doorset.
06	34	The hinge edge turns black.
18	48	Smoke issues from the handle of doorset.
59	28	A cotton pad is applied on the latch position of doorset and the pad is not ignited.
66	01	A cotton pad is applied on the top hinge edge of doorset and the pad is not ignited.
68	00	Test is discontinued.

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Temperature Data:

Mean furnace temperature together with temperature-time relationship specified in the standard

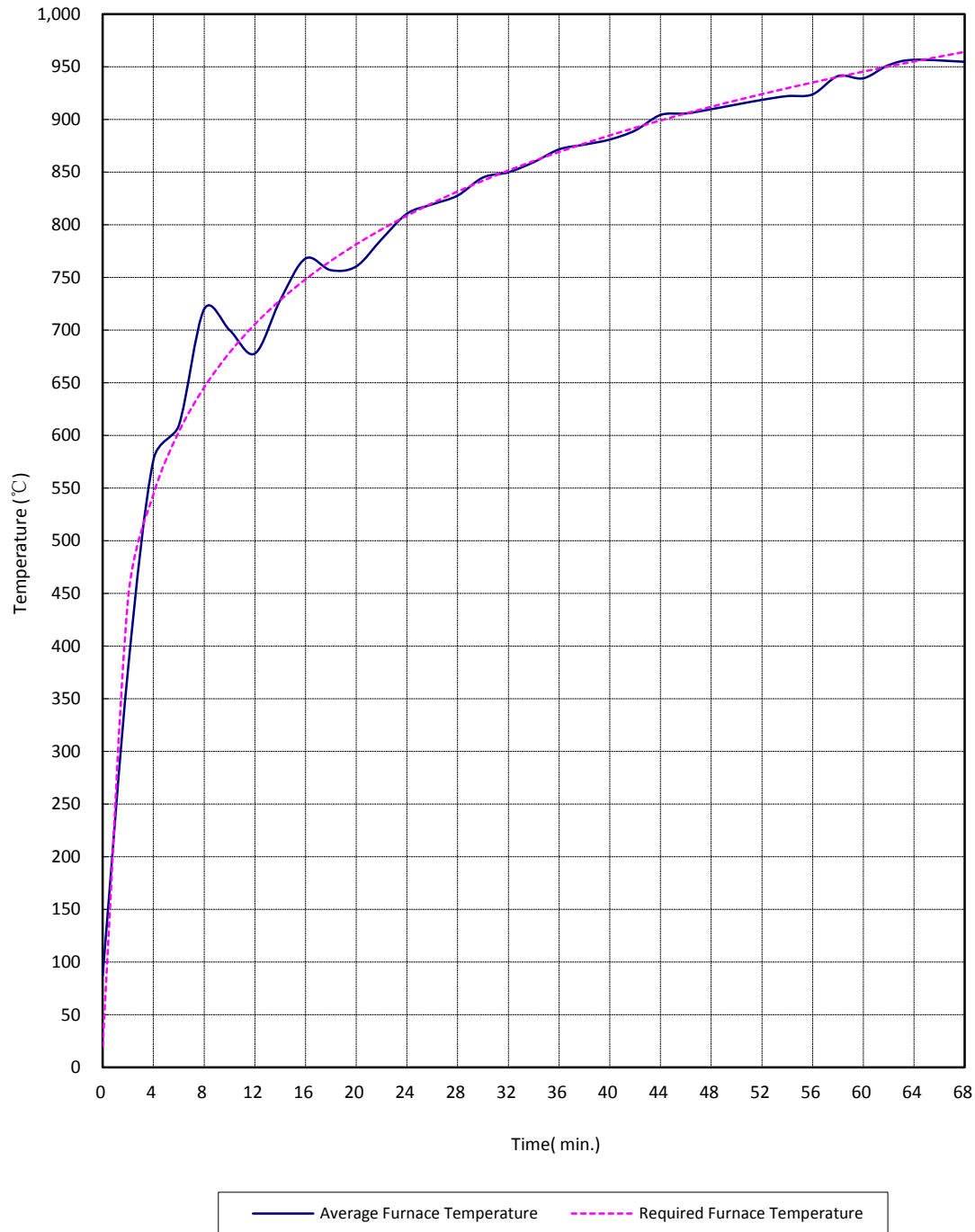
Time Mins	Specified Furnace Temperature (°C)	Furnace Mean Temperature (°C)
0	20	87
2	445	378
4	544	577
6	603	609
8	645	720
10	678	700
12	705	678
14	728	728
16	748	768
18	766	757
20	781	760
22	796	786
24	809	810
26	820	819
28	832	828
30	842	845
32	851	850
34	860	859
36	869	872
38	877	876
40	885	881
42	892	889
44	899	904
46	906	906
48	912	910
50	918	914
54	930	922
58	940	941
62	950	952
64	955	957
68	964	955

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Graph for mean furnace temperature and temperature-time curve specified in the standard



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Unexposed surface temperatures

Time Mins	T16 (°C)	T17 (°C)	T18 (°C)	T19 (°C)	T20 (°C)	Mean Temperature (°C)
0	34	35	34	34	34	34
2	35	36	34	35	34	35
4	35	35	34	34	34	35
6	35	35	35	35	34	35
8	35	35	35	35	35	35
10	35	36	35	35	35	35
12	36	37	36	36	36	36
14	37	38	37	38	37	38
16	39	42	39	40	39	40
18	42	46	41	44	40	43
20	48	52	45	49	44	47
22	54	58	50	54	49	53
24	60	64	56	60	55	59
26	66	69	62	65	61	65
28	71	73	67	70	67	69
30	75	75	71	74	71	73
32	78	77	74	76	75	76
34	80	79	76	78	77	78
36	81	79	78	80	78	79
38	82	80	78	80	79	80
40	82	80	79	81	80	80
42	82	80	80	81	80	81
44	82	81	80	81	81	81
46	83	81	80	82	81	81
48	83	81	80	82	81	81
50	83	81	80	82	81	81
52	83	81	80	82	81	81
54	83	81	81	82	81	82
56	83	81	81	82	82	82
58	83	82	81	82	82	82
60	83	82	81	82	82	82
62	83	82	81	82	82	82
64	83	83	82	82	83	82
68	83	83	82	82	83	83

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Unexposed surface temperatures

Time Mins	T21 (°C)	T22 (°C)	T23 (°C)	T24 (°C)	T25 (°C)	T26 (°C)	T27 (°C)	T28 (°C)	T29 (°C)	T30 (°C)
0	34	34	34	33	33	33	32	32	33	33
2	37	37	36	34	34	34	34	34	34	33
4	35	36	35	34	34	33	34	37	33	33
6	36	38	35	34	34	33	36	41	33	33
8	35	38	35	34	34	33	37	42	33	33
10	36	36	35	35	35	33	38	44	33	33
12	37	37	36	36	36	34	38	47	44	33
14	38	38	37	38	37	33	39	44	49	33
16	42	41	40	41	40	33	39	44	46	33
18	47	45	43	46	43	33	39	42	44	33
20	53	51	56	53	47	33	39	40	42	33
22	59	59	66	59	54	33	39	39	40	33
24	65	66	72	64	60	34	40	38	39	33
26	70	72	75	69	67	34	40	37	39	33
28	74	76	77	72	72	34	41	37	39	33
30	77	78	78	73	76	34	41	37	39	34
32	78	79	79	75	79	34	42	37	39	34
34	79	80	79	76	80	35	42	37	40	34
36	80	80	79	76	81	35	43	38	40	34
38	80	80	80	76	81	35	43	38	40	34
40	81	79	79	76	81	35	43	38	41	34
42	81	79	79	76	82	35	44	39	41	34
44	81	79	80	76	82	36	45	39	41	35
46	81	79	80	76	82	36	46	40	42	35
48	81	79	80	76	82	36	46	40	42	35
50	82	79	80	76	82	36	47	41	43	35
52	82	79	80	76	82	37	49	41	43	36
54	82	79	80	77	82	37	50	42	44	36
56	82	80	80	77	82	37	52	43	45	36
58	82	80	80	77	82	38	54	44	45	37
60	82	81	80	77	82	38	56	44	46	37
62	82	81	80	77	82	38	58	45	46	37
64	83	82	80	78	82	39	60	46	47	38
68	84	82	81	78	83	39	64	47	48	39

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Horizontal Deflection (Positive values indicate movement into the furnace)

Time Mins	D1 (mm)	D2 (mm)	D3 (mm)	D4 (mm)	D5 (mm)	D6 (mm)	D7 (mm)
0	0	0	0	0	0	0	0
10	0	-2	0	0	1	0	3
20	0	-2	1	0	3	3	7
30	0	-1	21	0	4	6	9
40	0	-1	36	0	10	10	5
50	0	-1	60	0	10	15	13
60	0	-1	67	0	16	25	12

Door Closer Closing Force

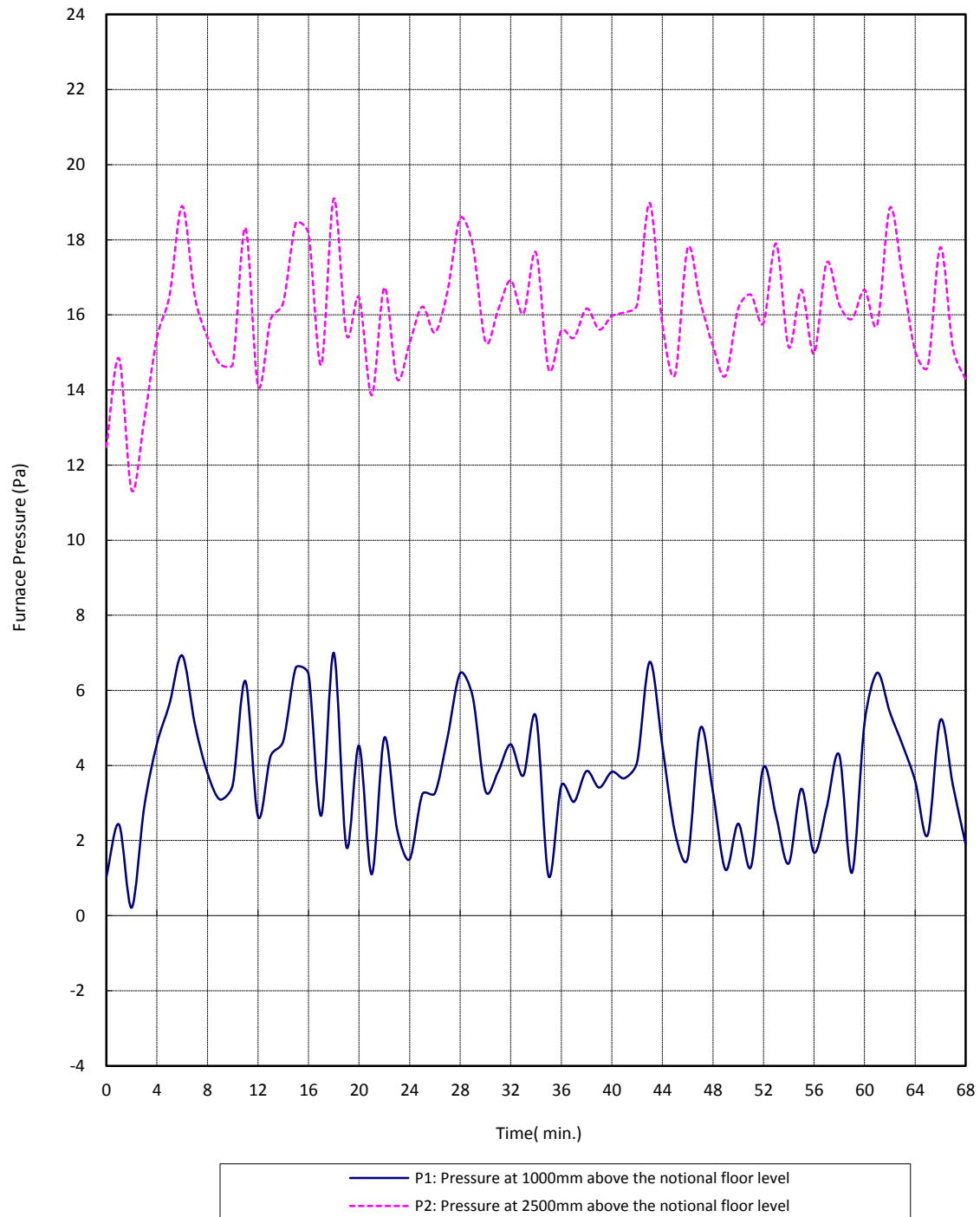
Door Closer Closing Force		
Highest gauge reading (N)	Distance (m)	Moment (N.m)
60.2	0.67	41.9
61.5	0.67	
65.8	0.67	

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Furnace pressure



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SECTION 11 PHOTOGRAPHS



Fig. 1 Exposed Side Prior to the Fire Test (The wood shim was removed before the test)



Fig. 2 Unexposed Side Prior to the Fire Test

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Fig. 3 Unexposed Side after 30 Minutes



Fig. 4 Unexposed Side after 66 Minutes

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Fig. 5 Unexposed Side after 68 Minutes



Fig. 6 Exposed Side after 68 Minutes

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SECTION 12 REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	2018/9/21	N/A	Original Report Issue