ESL

مختبر الإمارات للسلامة
EMIRATES SAFETY LABORATORY

TEST REPORT

No. 0054-25-TR-08

Fire resistance of **Latched, Single Action, Single Door Fire-Rated PSB Wooden Door with hardwood frame & stone-clad architrave** made according to technical documentation No. ABS00094-STD-FR-90-PSB-146 R01 (dated 24-06-2025).

according to:
- EN 1363-1:2020
- EN 1634-1:2014+A1:2018

Date of issue: 05 July 2025

ilac-MRA IAS ACCREDITED Testing Laboratory TL-1038

1 EXCLUSIVE SUMMARY

Test method:	EN 1363-1:2020 – *Fire resistance tests - Part 1: General requirements*. 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.*
Name and address of the testing laboratory:	Emirates Safety Laboratory Al Warsan III, Dubai United Arab Emirates
Date of specimen(s) delivery:	The test element with the technical documentation was delivered by the manufacturer to the laboratory on 14 April 2025.
Date of specimen(s) installation:	14 to 16 April 2025
Date of testing:	16 April 2025
Name and address of the test sponsor:	Abanos Furniture & Decoration Industry LLC P.O. Box 114480 Dubai, United Arab Emirates
Name and address of the manufacturer/supplier:	Abanos Furniture & Decoration Industry LLC P.O. Box 114480 Dubai, United Arab Emirates
Name of the test specimen: (product name)	Latched, Single Action, Single Door Fire-Rated PSB Wooden Door with hardwood frame & stone-clad architrave
Identification of the test specimens:	Two single-leaf wooden doorset were installed in a vertical rigid supporting construction, Door 15 – opening away from the furnace Door 16 – opening towards the furnace *Both door sets were of the same design and only the opening direction was different to test from both sides of the door*.
ESL identification number:	0054-25-15 - opening away from the furnace 0054-25-16 - opening towards the furnace
Description of sampling procedure including date if applicable:	Test specimens were selected by ESL Certification (sampling acknowledgement No. SN5043 dated 11 April 2025) and delivered to ESL by the test sponsor. The Laboratory Team was not involved in the sampling process. 

2 TEST CONDITIONS

Heating temperature of the test element:	The standard temperature-time curve was maintained within its allowable limits according to EN 1363-1. Thea temperature inside the furnace during the test was measured at a distance of 140mm from the surface of the test construction. Heating conditions are shown in Graphs 1 and 2.
Furnace pressure:	Differential pressure in the furnace measured at a height of 500mm above the level of furnace floor was maintained according to EN 1363-1. The pressure probe was located at 370mm above the door sill level of the specimen. The pressure level during the test is shown in Graph 3.
Ambient temperature:	Measured during the test at a distance of 1520mm away from the unexposed face of the specimen, at the commencement of each test was 28.0°C

3 DESCRIPTION OF THE TEST SPECIMEN

Constructional details of the single leaf doorset are presented in the technical documentation enclosed with this report.

Table 1

Measurement	Nominal (mm)		Measured by ESL (mm)	
	Door 15	Door 16	Door 15	Door 16
Overall door frame size (h x w)	2722 x 1054	2722 x 1054	2722 x 1055	2722 x 1054
Overall door leaf size (h x w)	2687 x 994	2687 x 994	2688 x 997	2689 x 996
Overall architrave size – unexposed side(h x w)	2755 x 1120	2732 x 1084	2751 x 1120	2734 x 1084
Overall architrave size – exposed side(h x w)	2732 x 1084	2755 x 1120	2735 x 1084	2752 x 1120
Door frame clear opening (h x w)	2677 x 964	2677 x 964	2675 x 964	2676 x 964
Thickness of the door leaf	64	64	64.42	64.20
Effective Rebate	-	-	65	65
Door leaf Weight (kg)	-	-	145.86	147.52

3.1 Description of the Doorset (Door 15 & Door 16)

3.1.1 Description of the Door Frame

The doorset consisted of a door frame with a cross-section of 150 x 45 mm, as shown in Figures 3 and 4. The frame was made of African Mahogany hardwood with a density of 730kg/m³ and a moisture content of 10.4% (declared by the client) and a density of 750kg/m³ (calculated by ESL certification). The door fame was manufactured by African Mahogany Wood and supplied by Danube Building Materials FZCO. The jambs and head of the door frame were joined at the corners using miter joints, secured with one (1) Ø6 x 48 mm long and one (1) Ø8 x 76 mm fine thread stainless steel drywall screws, manufactured by MT Werkz, positioned at each frame head. Additionally, the frame components were bonded together using wood glue (pH 5-7, specific gravity 1.1 kg/liter) produced by Ritver Paints & Coatings. A single coat of FCC-9000 Flame Core Coat , manufactured and supplied by MVL Fire Stop was applied to both the exposed and unexposed faces of the frame as well as the inner side, with the exception of the rebate.

An architrave with cross-sections measuring 40 x 20 mm East White Marble was supplied by Dar Al Rokham LLC. Additionally, another architrave, with cross-sections measuring 60 x 9 mm, was manufactured and supplied by Al Talah Board Manufacturing Co. Ltd. This second architrave was constructed from Desert Board PSB FR, with a stated density of 800kg/m³ and a stated moisture content of 12% (declared by the client) and a density of 850 kg/m³ and a moisture content of 10-12% (calculated by ESL Certification).

The 40 x 20 mm architrave was installed on the closing side of the door frame jamb using 3 parts of Latapoxy 300 manufactured by LATICRETE South East Asia Pte Ltd. On the opening side of the door frame jamb, a 60 x 9 mm architrave was installed using four (4) Ø1.5 x 40 mm nails, spaced 740 mm apart from center to center. Additionally, the architrave was secured to the top of the frame using three (3) Ø1.5 x 40 mm nails on each side, positioned approximately 110 mm from each edge, along with an extra nail placed at the center, as shown in Figures 3 and 4.

3.1.2 Description of the Door Leaf

The door leaf was constructed from a 64 mm thick Desert Board PSB FR, which featured 3mm thick African Mahogany wood lipping on all sides. The Desert Board PSB FR, produced by Al Talah Board Manufacturing Co. LTD, had a stated density of 800kg/m³ and a stated moisture content of 12%. It was composed of two (2) 32 mm layers that were bonded together using Fevicol SWR super synthetic resin adhesive, manufactured by Pidilite Industrues. Additionally, a single coat of FCC-900 Flame Core Coat, produced and supplied by MVL Fire Stop, was applied to the entire leaf, as shown in Figure 3 and 4.

The 3 mm thick African Mahogany wood lipping, supplied by Danube Building Materials FZCO, had a density of 730kg/m³ and a moisture content of content 10.4% (declared by the client) and a density of 750kg/m^3 (calculated by ESL Certification). It was securely attached to the edges of the core using Kleiberit 501.0 PUR adhesive, manufactured by Klebchemie M.G Becker GmbH & Co., as shown in Figure 3 and 4.

3.1.3 Doorset Gaskets:

Door Frame

- Two (2) 20 x 4mm thick intumescent seals (Athmer FP 2004- brown color), manufactured by Athmer, were installed 4mm and 34mm from the opening edge as shown Figures 3 and 4.
- A single winged corner seal (PS1212P – brown color) produced by Athmer has been installed on all three sides of the frame as shown Figures 3 and 4.

Door Leaf

- One (1) 20 x 4mm thick intumescent seals (Athmer FP 2004- brown color), manufactured by Athmer, were installed 14mm from the opening edge as shown see Figures 3 and 4.

- Two (2) 18 x 2mm thick graphite liners, manufactured by Athmer, were installed on each side of the drop seal at the bottom of the leaf (see Figures 5).

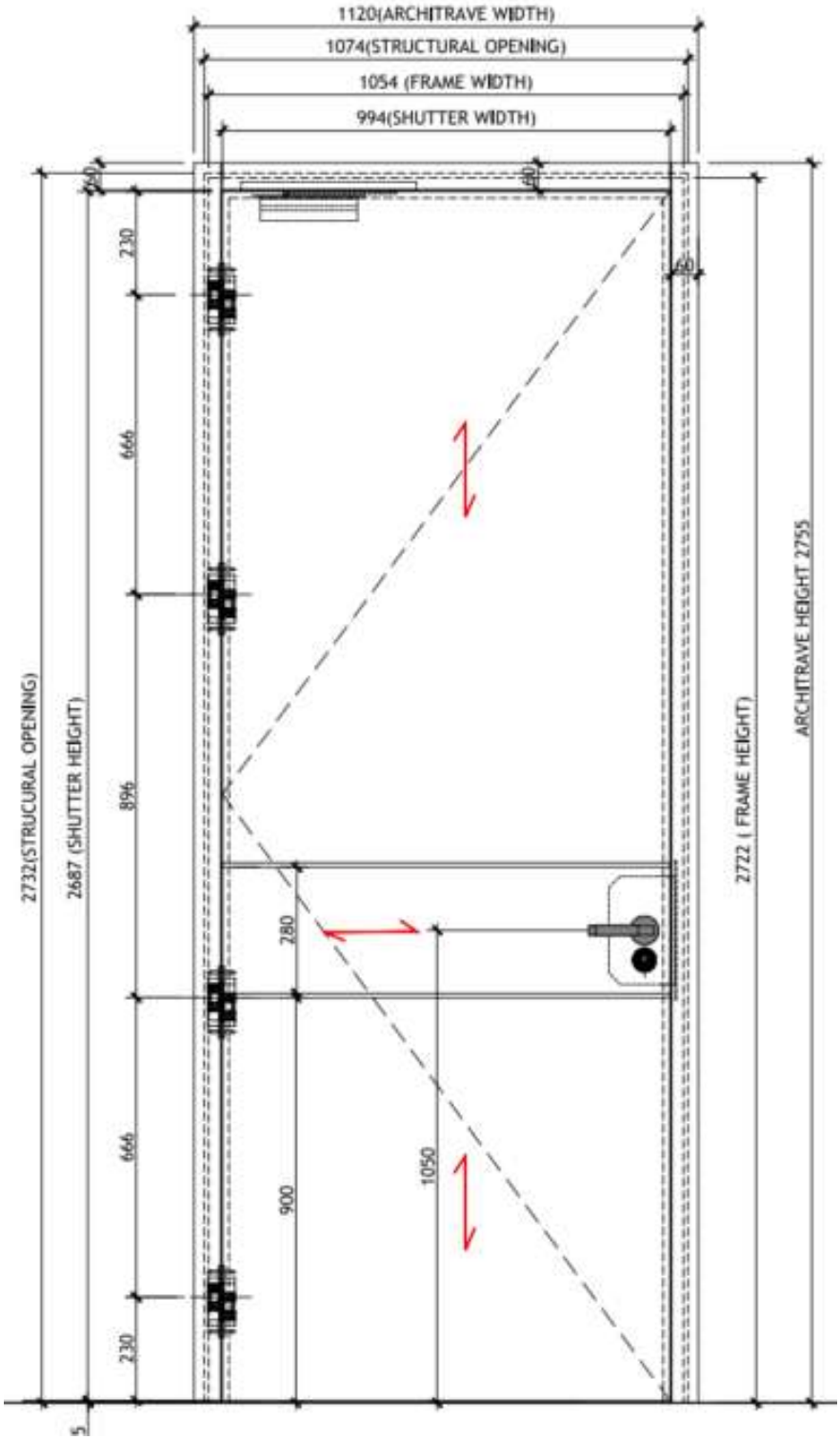


Figure 1. Elevation View of the Door 1 (unexposed)

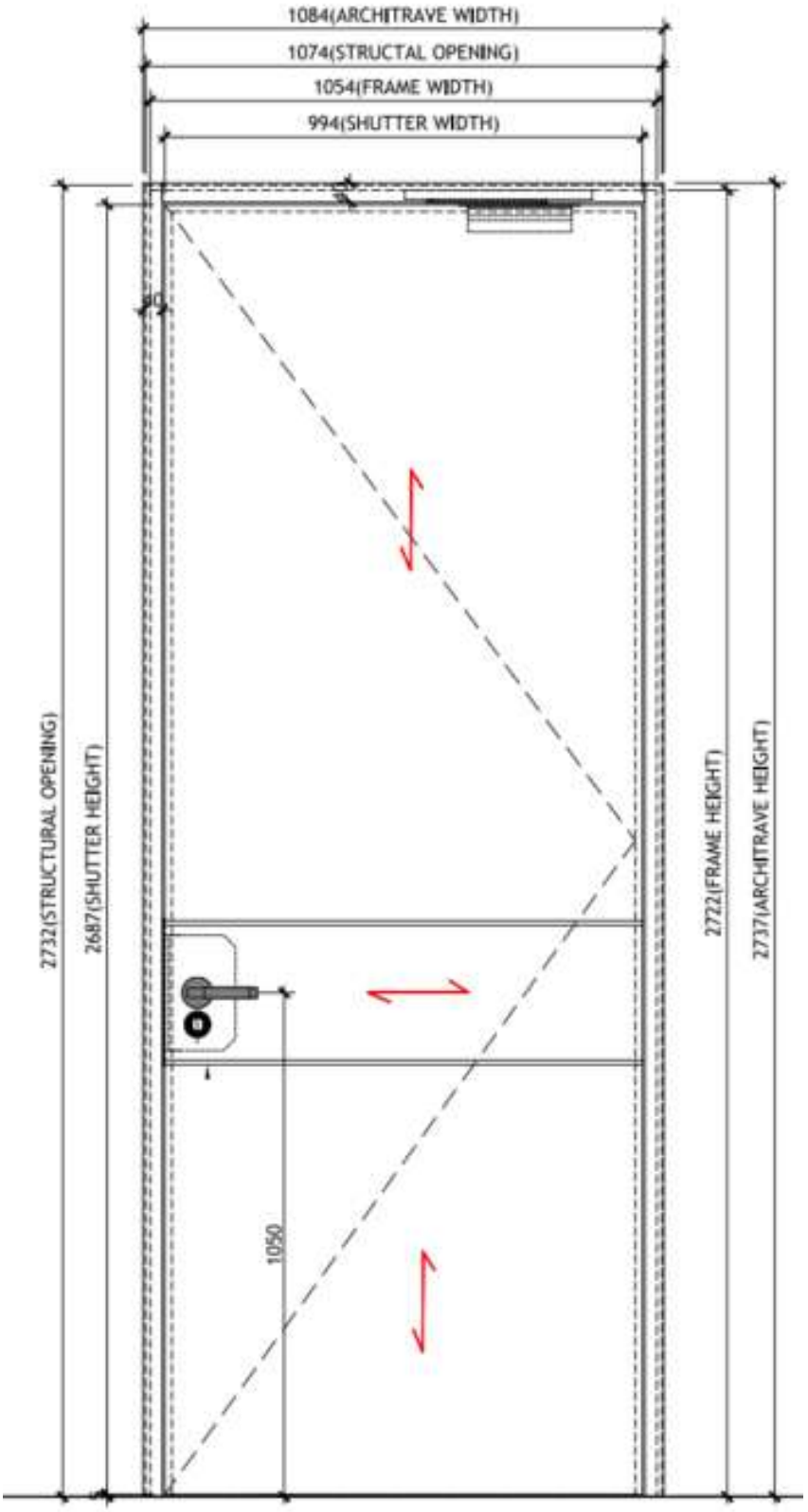


Figure 2. Elevation View of the Door 2 (unexposed)

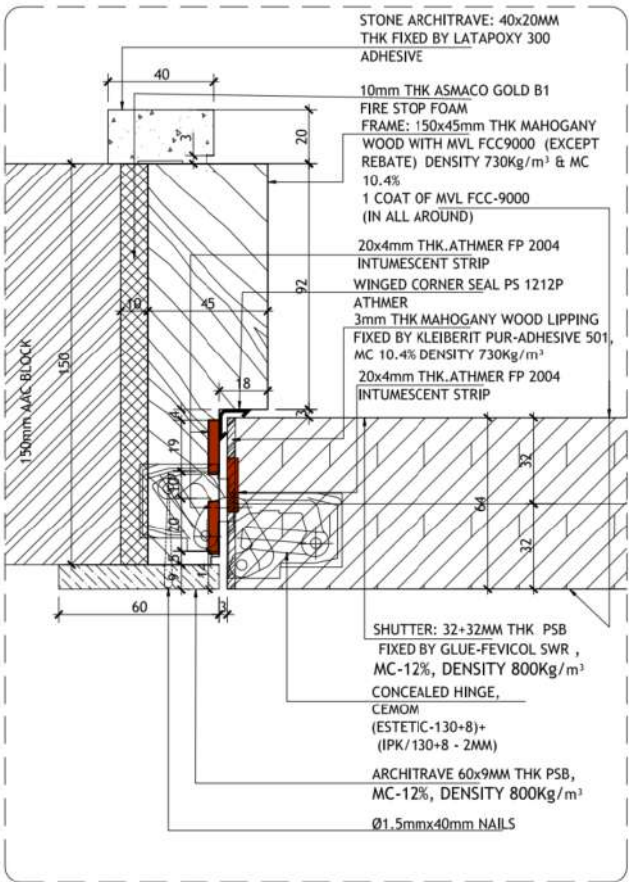


Figure 3. Vertical Jamb Details

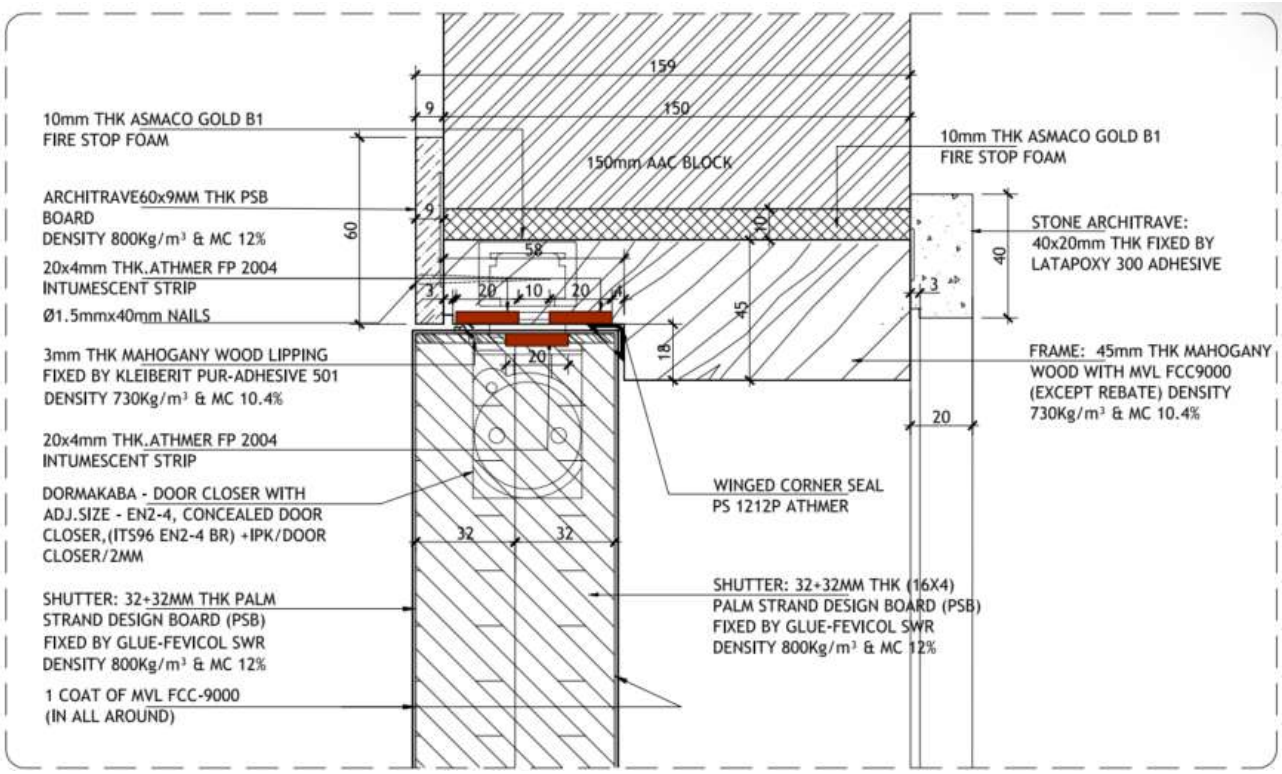


Figure 4. Horizontal Top Details

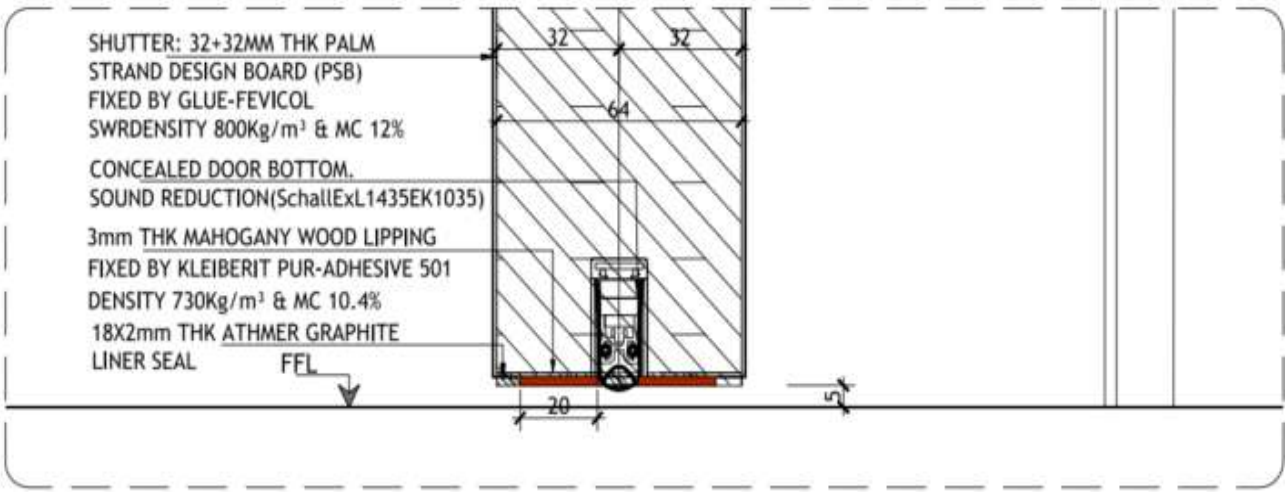


Figure 5. Bottom Door Leaf Detail

3.1.4 Door Hardware (Door 9 & Door 10)

Table 2

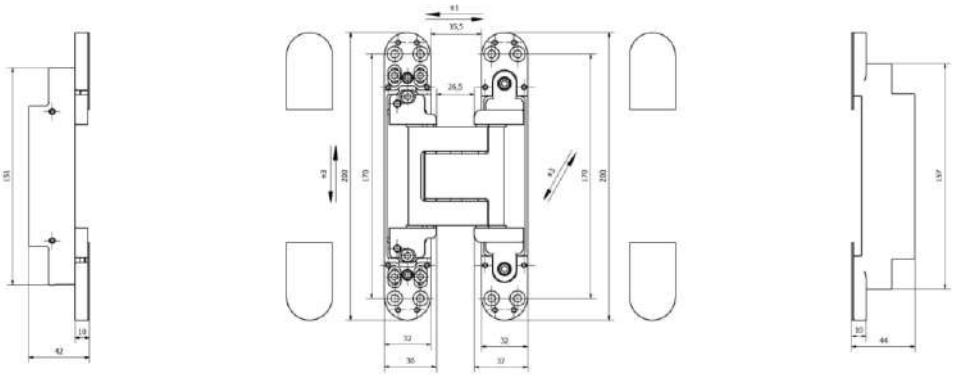
Hinge		
Manufacturer	Cemom, France	
Type	Concealed Hinge	
Reference	Estetic 130+8 BR	
Dimensions		
Quantity	Four on each specimen	
Fixing (hinge CL)	240mm and 900mm from the top of the leaf. 240mm and 900mm from the bottom of the leaf (measured by ESL). Additionally, the supporting structure has been cut to dimensions of 40 x 15 mm to accommodate the hinge.	
Protection	Manufacturer	Athmer
	Reference	IPK/ESTETIC130+8-2mm
	Thickness	2mm

Table 3

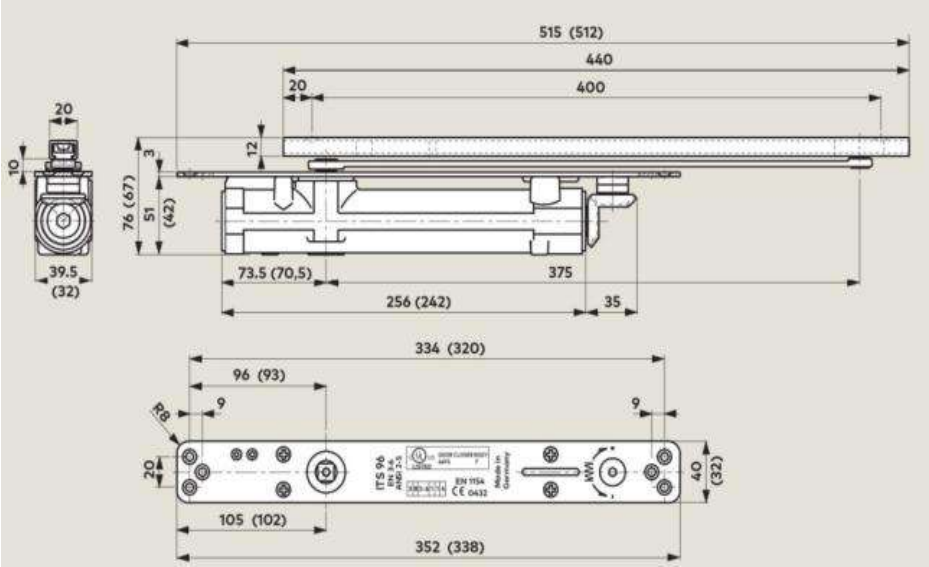
Door Closer		
Manufacturer	Dormakaba, UK	
Type	Concealed Door Closer	
Reference	ITS96, Adjustable Door Closer, EN 3-4	
Dimensions		
Quantity	One on each specimen	
Fixing	70mm from the top edge of each door leaf (measured by ESL).	
Protection	Manufacturer	Athmer
	Reference	IPK/Doorcloser/2mm
	Thickness	2mm

Table 4

Door Handle & Escutcheon		
Manufacturer	Dormakaba, UK	Dormakaba, UK
Type	Stainless Steel Level Handle	Euro Profile Escutcheon
Reference	RLH-S-SY02	Comes in lever handle
Dimensions		Ø 50mm
Quantity	One on each specimen	
Fixing (C/L)	1050 mm from the bottom of the leaf (measured by ESL).	
Protection	N/A	

Table 5

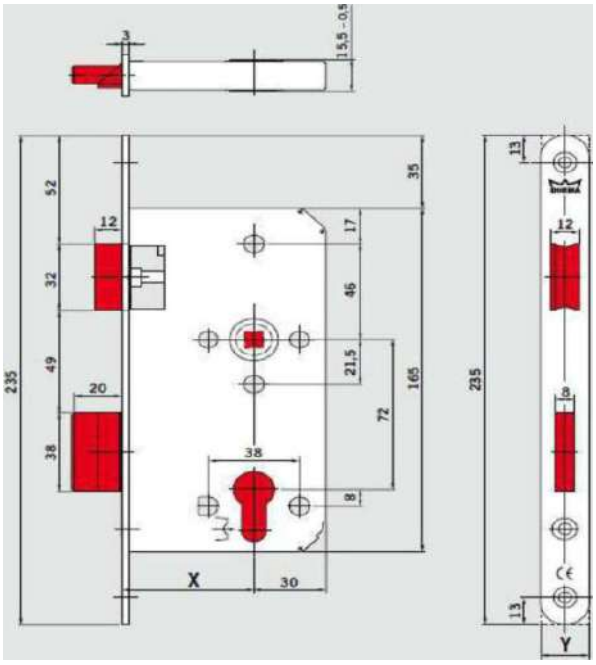
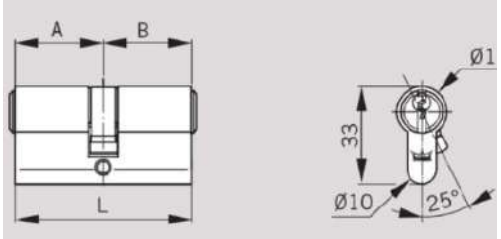
Door Lock		
Manufacturer	Dormakaba, UK	
Type	Euro Profile Mortise Lock Latch	
Reference	281-A	
Latch Throw	12.19mm (verified by ESL)	
Dimensions		
Quantity	One on each specimen	
Fixing (C/L)	1030mm from the bottom edge of each door leaf (measured by ESL).	
Protection	Manufacturer	Athmer
	Reference	IPK/Lock-2mm
	Thickness	2mm

Table 6

Door Lock Cylinder	
Manufacturer	Dormakaba, UK
Type	Euro Profile Cylinder
Reference	DEC-60
Dimensions	 90mm length

Quantity	One on each specimen
Fixing (C/L)	960mm from the bottom edge of each door leaf (measured by ESL).
Protection	N/A

Table 7

Drop Down Seal	
Manufacturer	Athmer
Type	Drop Seal
Reference	SchallExL 1435EK1035
Dimensions	
Quantity	One on each specimen
Fixing (C/L)	At the bottom center of each door leaf (measured by ESL).
Protection	N/A

3.2 Components Photographs

Door Handle and Lock Cylinder

Door Closer

Hinge

Corner Seal & Intumescent at Door Fame

Graphite Liner and Drop-down seal at the Bottom of the Door Leaf

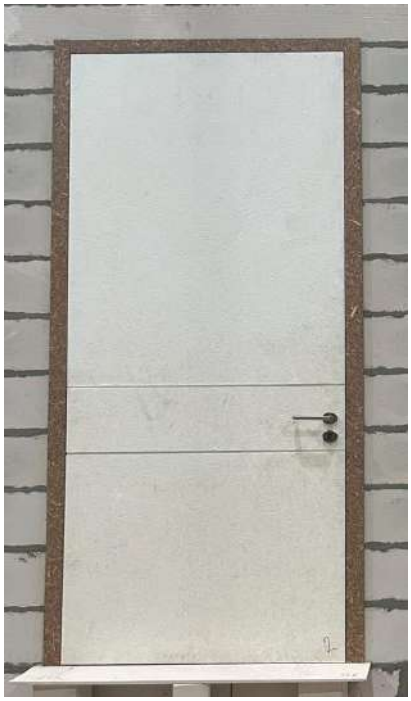
Intumescent at Door Leaf

Strike Plate

Strike Plate

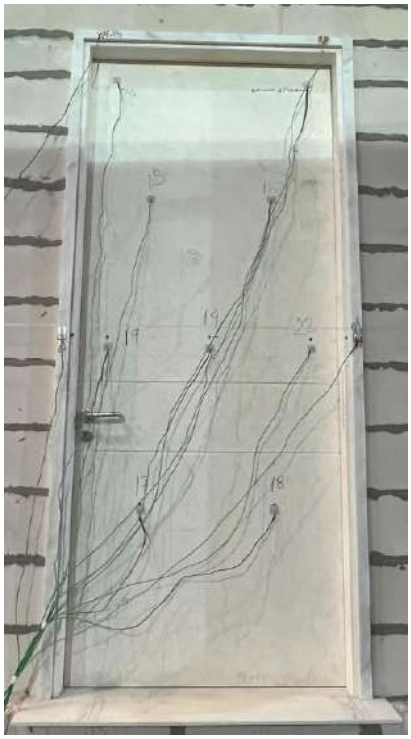
Foam used to fill the gap between supporting construction and frame

FCC-9000 Flame Core Coat at Door 15 (exposed side)



FCC-9000 Flame Core Coat at Door 16 (exposed side)

FCC-9000 Flame Core Coat at Door 15 (unexposed side)



FCC-9000 Flame Core Coat at Door 16 (unexposed side)

3.3 Installation

There is a 10mm gap between the door frame and the supporting structure. In the area where the hinges are positioned, an additional cutout measuring 40mm x 20mm has been made to facilitate the installation of the hinges. All gaps have been filled with Asmaco Gold Universal Multifoam (B1) Fire Retardant, which is manufactured by Asmaco and supplied by Anchor Allied Factory LLC. Additionally, Ø8 x 100mm self-tapping screws with Klimax plastic anchors were installed approximately 520mm apart, in six (6) vertical locations on both jambs as shown in Figure 3.

Calcium silicate board of 12mm thickness constituted a simulation of the floor.

3.4 Description of the supporting construction

The doorset was installed in rigid standard supporting construction (according to EN 1363-1 standard). Supporting construction of 150mm thick autoclaved aerated concrete blocks with a nominal density of 500 ± 50kg/m^3 was filling the mounting frame of dimensions 4240 x 4240mm, made of a steel H-profile. The whole construction was used to close the furnace. Supporting construction was conditioned until it was deemed satisfactory by the Laboratory as per relaxation given in Appendix A of EN 1634-1.

3.5 Verification

Verification of the test elements was performed before the test, during the assembly and after the test. It included visual inspection of constructional details and its assembly method as well as assessment of dimensions' conformity with technical documentation.

Note: the information provided in section 3.1 has been compiled based on information received from the Test Sponsor unless stated differently. When the method of construction precluded a detailed survey of the test specimen then laboratory relied on verification by the Certification body which has overseen (during the sampling process) the manufacture of the doorset which is to be the subject of the test";"

4 PRE-TEST PREPARATION

4.1 Conditioning

The doorset was installed by the test sponsor from 14 to 15 April 2025 in the previously conditioned supporting construction. The test element was conditioned for 1 day afterwards under the following conditions:

- relative humidity: min RH (%): 30.4, max RH (%): 55.0
- temperature: min temp. (°C): 26.9, max temp. (°C): 33.8

4.2 Operability test

The test element prior to the fire resistance test and after conditioning was submitted to operability according to EN 16034:2014, by operating 25 cycles of opening to 90° and fully closed the door leaves.

4.3 Closing force measurements

The maximum closing force for each door leaf measured prior to the test, during the opening at a distance of 100mm was:

- Door 15: 79.3N
- Door 16: 83.7N

4.4 Gaps measurements

Gaps measurements made in ESL laboratory are shown in Table 8.

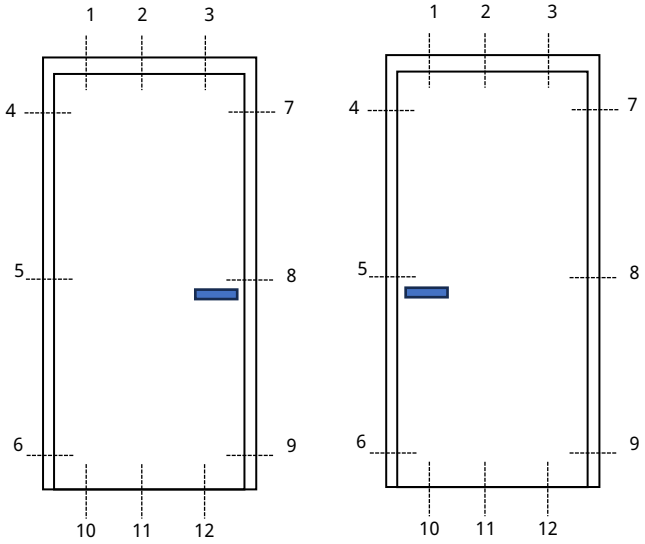


Figure 6. Gap measurement location

Table 8

No.	Door 15 Unexposed side (mm)	Door 16 Exposed side (mm)
1	2.50	2.20
2	2.17	2.87
3	2.18	3.04
4	2.86	3.08
5	2.58	2.32
6	2.66	2.95
7	2.24	2.43
8	2.50	3.06
9	2.80	3.41
10	3.41	2.85
11	3.04	5.10
12	3.82	4.26

Permitted gap sizes are shown in Table 9.

Table 9

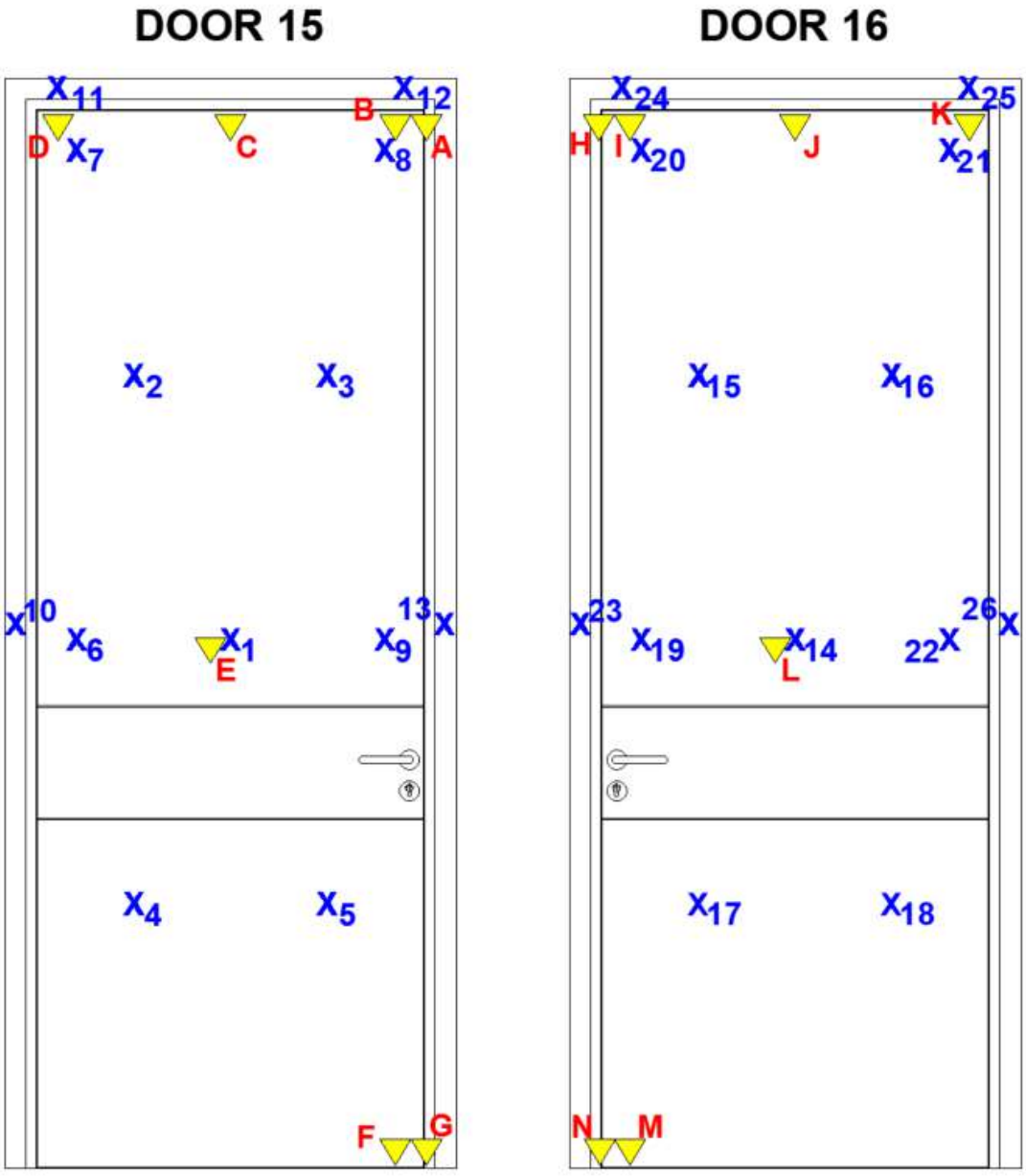
GAPS			***Measurements, mm***		
			Average	***Maximum***	***Permitted gap size***
Door 15 & 16	Along the horizontal edges	At the top	2.5	3.0	4.6
		At the bottom	3.7	5.1	6.1
	Along the vertical edges	Hinge side	2.8	3.4	5.0
		Lock side	2.6	3.1	4.8

4.5 Final settings

Prior to the fire resistance test, the test specimens were subjected to a final closing involving opening the leaves to a distance of approximately 300 mm and returning it to the closed position.
The doors were latched, and the key was removed from the lock. The door closer was connected.

4.6 Arrangement of temperature and defection measurement points

The positioning scheme of the temperature and deflection measuring points is shown in Figure 7.

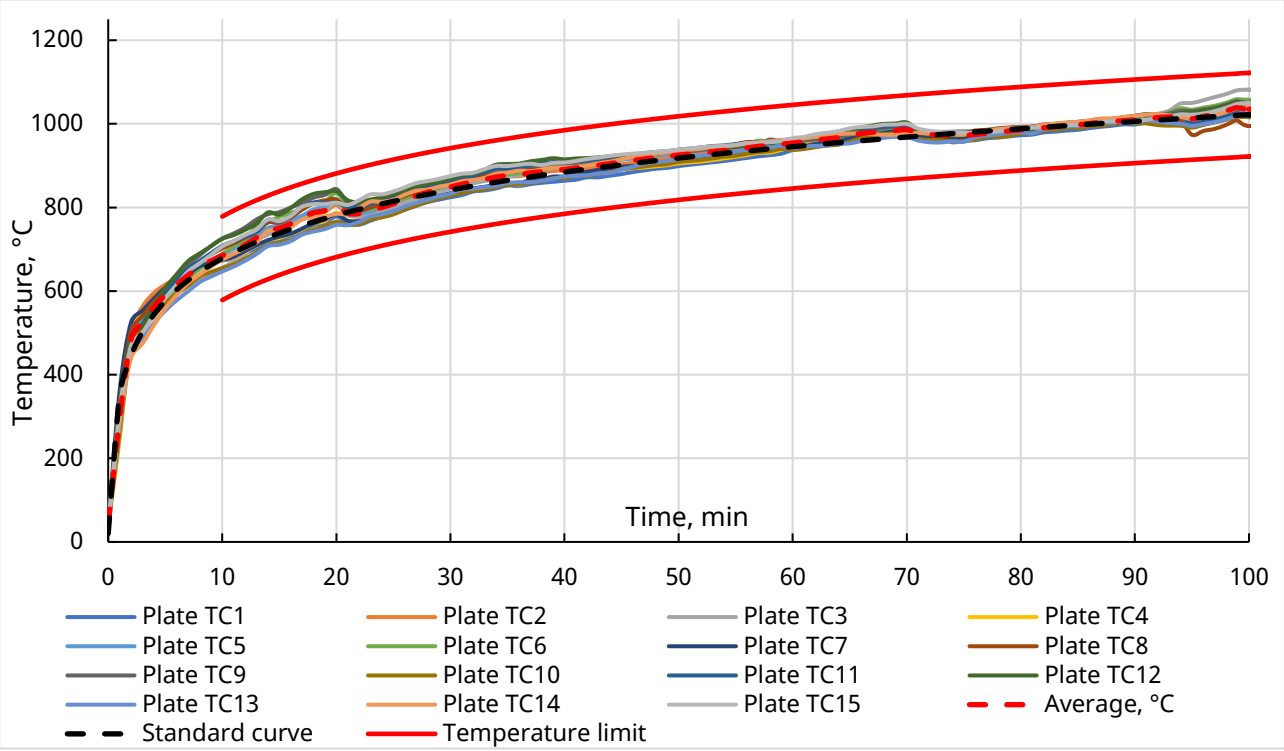


x – temperature measuring point (standard procedure)
▽ – deflection measuring point

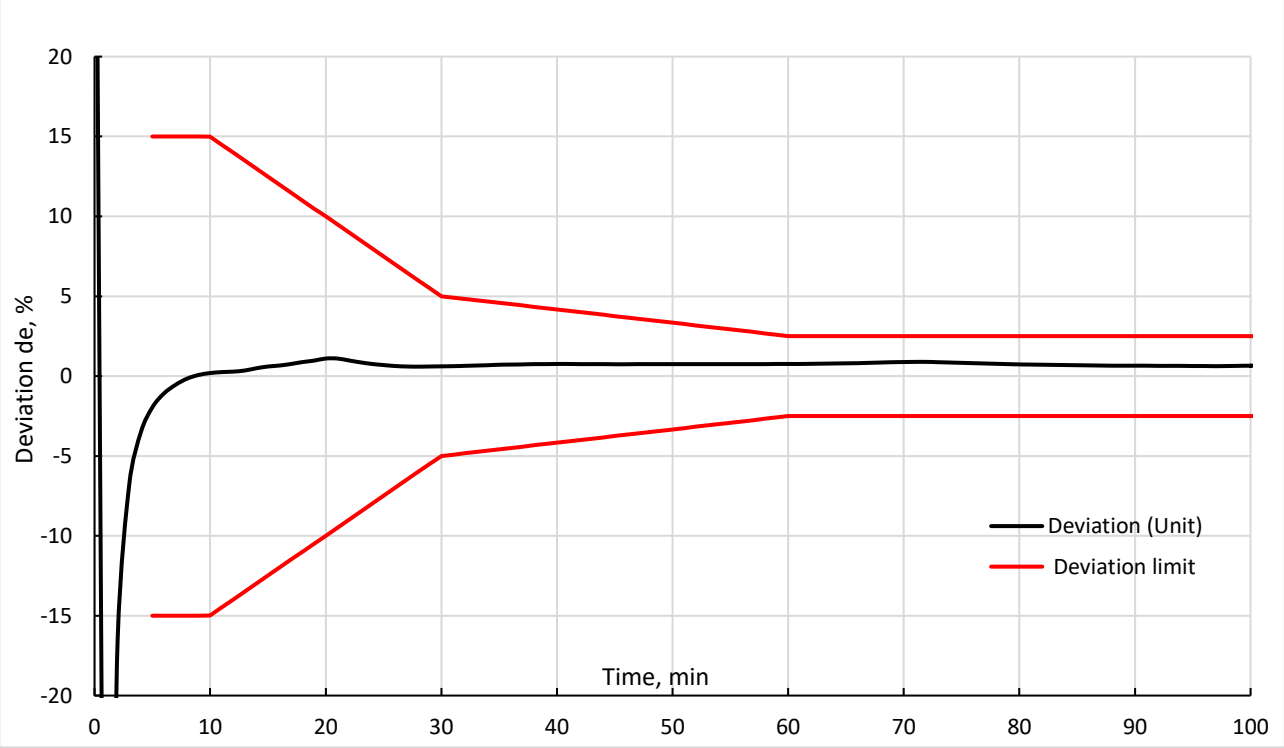
Figure 7. Scheme of the temperature and deflection measuring points on the unexposed side of the door

5 TEST RESULTS

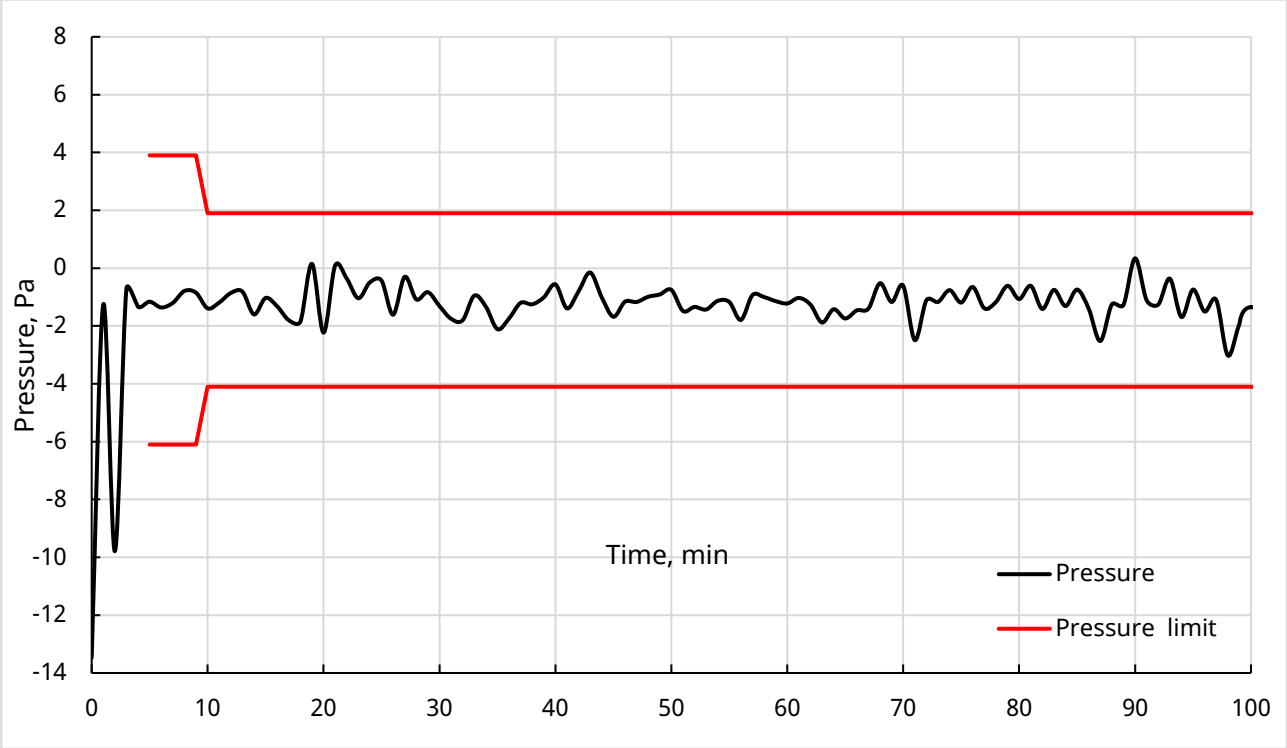
5.1 Furnace conditions



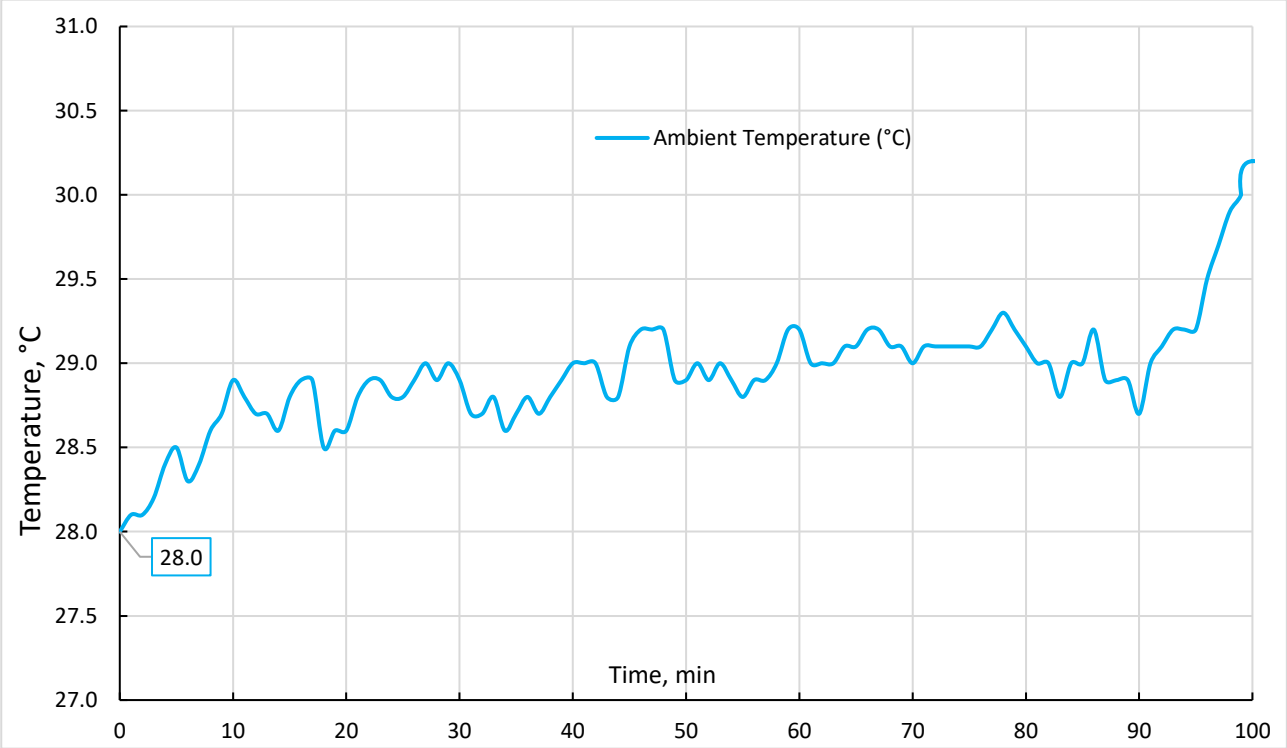
Graph 1. Temperature in the furnace during the test



Graph 2. Deviation d_e and tolerance limits of heating deviation during the test



Graph 3. Pressure inside the furnace during the test.



Graph 4. Ambient temperature during the test

5.2 Fire test results

5.2.1 Observations

Table 10

Elapsed time, min	OBSERVATION
0	Commencement of Test.
1	Smoke emanated from the perimeter edge of the leaf – both doors.
7	Smoke emanated from the keyhole – Door 16.
8	Discoloration was observed on the door closer side – Door 16.
15	Smoke emanated from the keyhole – Door 15.
22	Discoloration was observed on the frame and architrave adjacent to the door closer – Door 16.
24	Discoloration was observed on the architrave adjacent to the door closer – Door 15.
34	Discoloration was observed on the horizontal top architrave – Door 15.
43	Discoloration was observed along the upper edge of the leaf. – Door 16.
44	Moisture was observed to be dripping from the horizontal top edge of the leaf. – Door 16.
55	Smoke emanated from the perimeter edge of the leaf – Door 15.
57	Discoloration was observed on the lock cylinder – both doors.
60	Discoloration was observed on both the left and right vertical edges of the leaf, including the frame and architrave. – Door 15.
72	Glowing was observed in the upper left corner of the leaf. – Door 16. Cotton pad application at the upper left corner of the leaf. No ignition, with visible smoke stain – Door 16.
79	Cotton pad application at the upper left corner of the leaf. No ignition, with visible charring – Door 16.
80^{51}	**Integrity failure. Ignition of cotton pad upper right corner of the leaf – Door 16.**
81^{40}	**Integrity failure. Sustained flaming at the upper right corner of the leaf – Door 16.**
100	End of the test, as per test sponsor request.

5.2.2 Deflection measurements

Deflection measurements are shown in Table 11.

Table 11

	Time, min.	***Deflection at the measuring point, mm***													
		Door 15							**Door 16**						
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**
„+" Deflection towards the furnace *„-" Deflection outwards the furnace*	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	20	+2	-2	0	0	+4	-5	0	+1	+4	+3	+2	+7	+3	0
	40	+5	0	0	+3	-2	-4	0	+3	+10	+9	+7	+4	+3	0
	60	+5	+2	0	+2	-14	-2	0	+3	+10	+6	+9	-7	+3	0
	80	+5	+1	-7	-2	-26	+1	0	*/1*	+14	+6	**+16**	-13	+5	+3
	90	+5	-1	-12	0	**-35**	+1	0	*/1*	*/1*	*/1*	*/1*	*/1*	*/1*	*/1*

/1 – measurements omitted due to safety reasons.

5.2.3 Temperature rise on the unexposed side of the door

Temperature rise on the unexposed side of the Specimen in Table 12 & 13.

Table 12. Door 15

Elapsed time	*TEMPERATURE RISE AT POINTS, °C*													ΔT_{avg} *pts.: Std. 1-5,*	ΔT_{max} *pts.: Std. 1-9*	$\Delta T_{max\ frame}$ *pts.: 10-13*
	Standard procedure															
	Doorset									*Frame*						
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*°C*	*°C*	*°C*
0	0.4	0.0	0.2	-0.4	-0.4	-0.3	0.3	0.4	0.2	-0.5	0.1	0.2	-0.1	0.0	0.4	0.2
1	0.3	0.0	0.2	-0.4	-0.4	-0.3	0.4	0.5	0.2	-0.4	0.7	0.2	-0.2	-0.1	0.5	0.7
2	0.3	0.1	0.1	-0.4	-0.3	-0.3	0.4	0.5	0.1	-0.5	0.7	0.1	-0.2	0.0	0.5	0.7
3	0.3	-0.1	0.1	-0.4	-0.3	-0.3	0.5	0.5	0.2	-0.4	1.0	0.1	-0.1	-0.1	0.5	1.0
4	0.4	0.0	0.0	-0.5	-0.4	-0.3	0.4	0.5	0.3	-0.4	1.1	0.1	-0.1	-0.1	0.5	1.1
5	0.4	0.0	0.1	-0.4	-0.2	-0.2	0.5	0.5	0.3	-0.4	1.0	0.1	-0.1	0.0	0.5	1.0
6	0.4	0.0	0.1	-0.5	-0.3	-0.3	0.5	0.5	0.4	-0.4	0.5	0.0	-0.3	-0.1	0.5	0.5
7	0.4	0.0	0.1	-0.3	-0.2	-0.3	0.4	0.4	0.3	-0.5	0.6	0.1	-0.2	0.0	0.4	0.6
8	0.5	0.0	0.1	-0.3	-0.2	-0.3	0.4	0.5	0.4	-0.4	0.6	0.1	-0.2	0.0	0.5	0.6
9	0.4	0.0	0.2	-0.3	-0.2	-0.2	0.4	0.5	0.3	-0.5	0.6	0.1	-0.2	0.0	0.5	0.6
10	0.4	0.1	0.2	-0.2	-0.2	-0.3	0.4	0.6	0.4	-0.4	0.7	0.1	-0.1	0.1	0.6	0.7
11	0.5	0.1	0.2	-0.2	-0.2	-0.2	0.6	0.6	0.5	-0.4	0.6	0.0	-0.1	0.1	0.6	0.6

Elapsed time	TEMPERATURE RISE AT POINTS, °C													ΔT_{avg} pts.: Std. 1-5,	ΔT_{max} pts.: Std. 1-9	$\Delta T_{max\ frame}$ pts.: 10-13
	Standard procedure															
	Doorset									Frame						
	1	2	3	4	5	6	7	8	9	10	11	12	13	°C	°C	°C
12	0.5	0.1	0.2	-0.2	-0.2	-0.2	0.6	0.6	0.5	-0.3	0.7	0.1	0.0	0.1	0.6	0.7
13	0.6	0.2	0.3	-0.1	-0.1	-0.1	0.6	0.6	0.5	-0.4	1.0	0.2	-0.1	0.2	0.6	1.0
14	0.6	0.2	0.2	-0.1	-0.1	-0.1	0.7	0.7	0.5	-0.4	0.9	0.1	-0.1	0.2	0.7	0.9
15	0.7	0.3	0.4	0.0	0.1	-0.1	0.7	0.8	0.6	-0.3	1.0	0.2	0.0	0.3	0.8	1.0
16	0.7	0.2	0.4	0.0	0.1	-0.1	0.7	0.8	0.6	-0.3	1.0	0.2	0.0	0.3	0.8	1.0
17	0.7	0.3	0.4	0.0	0.1	0.1	0.8	0.9	0.8	-0.3	1.2	0.4	0.0	0.3	0.9	1.2
18	0.7	0.3	0.4	0.0	0.2	0.1	0.8	0.9	0.7	-0.3	1.4	0.3	0.0	0.3	0.9	1.4
19	0.8	0.4	0.5	0.0	0.1	0.1	0.8	0.9	0.8	-0.4	1.6	0.2	0.2	0.4	0.9	1.6
20	0.7	0.3	0.5	0.0	0.2	0.2	0.8	1.1	0.9	-0.3	2.2	0.3	0.3	0.3	1.1	2.2
21	0.7	0.4	0.6	0.1	0.3	0.2	0.8	1.2	1.0	-0.2	3.4	0.4	0.6	0.4	1.2	3.4
22	1.0	0.6	0.6	0.1	0.3	0.3	1.1	1.3	1.0	-0.4	5.4	0.3	0.5	0.5	1.3	5.4
23	1.0	0.5	0.6	0.2	0.4	0.3	1.0	1.4	1.2	-0.3	11.0	0.3	0.7	0.5	1.4	11.0
24	1.1	0.6	0.7	0.3	0.5	0.4	1.3	1.7	1.7	-0.3	16.0	0.7	0.5	0.6	1.7	16.0
25	1.3	0.8	1.0	0.6	0.6	0.7	1.4	1.7	1.8	-0.3	22.2	1.3	0.4	0.9	1.8	22.2
26	1.3	1.0	1.1	0.8	0.9	0.9	1.6	2.0	2.0	-0.2	26.8	1.1	0.9	1.0	2.0	26.8

Elapsed time	TEMPERATURE RISE AT POINTS, °C													ΔT_{avg} pts.: Std. 1-5,	ΔT_{max} pts.: Std. 1-9	$\Delta T_{max\ frame}$ pts.: 10-13
	Standard procedure															
	Doorset									Frame						
	1	2	3	4	5	6	7	8	9	10	11	12	13	°C	°C	°C
27	1.6	1.1	1.2	1.0	1.0	1.1	2.1	2.5	2.1	-0.3	26.0	1.1	1.8	1.2	2.5	26.0
28	2.0	1.4	1.4	1.2	1.2	1.4	2.5	2.8	2.4	-0.3	26.5	1.6	2.8	1.5	2.8	26.5
29	2.1	1.8	1.8	1.6	1.6	1.7	2.6	3.3	2.8	-0.2	24.8	2.7	1.4	1.8	3.3	24.8
30	2.5	2.1	2.0	1.7	1.8	2.1	3.0	3.7	3.3	-0.1	24.5	4.3	1.2	2.0	3.7	24.5
31	2.8	2.4	2.3	2.2	2.1	2.6	3.8	4.2	3.6	-0.1	28.4	5.5	2.6	2.4	4.2	28.4
32	3.1	2.7	2.7	2.5	2.4	3.1	4.2	4.7	4.0	0.0	31.2	7.3	2.9	2.7	4.7	31.2
33	3.6	3.1	3.1	2.9	2.7	3.4	4.6	5.4	4.6	0.3	32.2	10.6	3.0	3.1	5.4	32.2
34	3.9	3.5	3.6	3.5	3.2	4.0	5.1	6.0	5.1	0.1	33.4	12.7	3.0	3.6	6.0	33.4
35	4.4	4.1	4.0	4.0	3.7	4.5	5.7	6.7	5.7	0.3	33.5	14.9	3.4	4.1	6.7	33.5
36	5.0	4.6	4.5	4.5	4.2	5.2	6.3	7.3	6.5	0.3	31.5	18.9	3.5	4.6	7.3	31.5
37	5.5	5.2	5.0	5.3	4.7	5.8	7.0	7.9	7.1	0.5	30.4	21.8	4.3	5.2	7.9	30.4
38	6.2	5.9	5.6	5.9	5.3	6.6	7.7	8.6	7.9	0.4	29.1	22.0	4.7	5.8	8.6	29.1
39	6.8	6.7	6.2	6.8	5.9	7.1	8.1	9.2	8.8	0.5	28.6	21.7	5.3	6.5	9.2	28.6
40	7.4	7.4	6.8	7.7	6.4	7.7	8.8	10.0	9.8	1.2	28.0	24.0	5.1	7.2	10.0	28.0
41	8.0	8.3	7.5	8.6	7.1	8.3	9.7	10.7	10.7	1.3	27.3	25.4	5.8	7.9	10.7	27.3

Elapsed time	TEMPERATURE RISE AT POINTS, °C													ΔT_{avg} pts.: Std. 1-5,	ΔT_{max} pts.: Std. 1-9	$\Delta T_{max\ frame}$ pts.: 10-13
	Standard procedure															
	Doorset									Frame						
	1	2	3	4	5	6	7	8	9	10	11	12	13	°C	°C	°C
42	8.8	9.4	8.3	9.7	7.8	9.0	10.4	11.8	11.7	1.9	27.1	33.2	5.5	8.8	11.8	33.2
43	9.7	10.6	9.2	11.0	8.5	9.7	11.2	12.2	12.8	2.3	26.5	33.7	5.7	9.8	12.8	33.7
44	10.5	12.0	10.0	12.2	9.2	10.5	12.2	13.0	13.8	2.4	26.4	36.8	6.1	10.8	13.8	36.8
45	11.3	13.4	10.9	13.6	9.9	11.4	13.3	13.9	14.8	2.4	25.4	40.4	6.5	11.9	14.8	40.4
46	12.1	14.9	12.0	15.2	10.7	11.9	14.0	15.2	16.6	3.1	25.0	43.2	5.4	13.0	16.6	43.2
47	12.9	16.4	12.8	16.8	11.4	12.7	15.7	15.2	17.1	3.3	24.2	41.0	7.0	14.1	17.1	41.0
48	13.9	18.2	13.7	18.3	12.1	13.8	17.2	15.9	17.9	3.2	23.0	43.3	9.9	15.3	18.3	43.3
49	14.7	19.9	14.8	20.0	13.1	14.6	17.8	17.2	19.4	4.0	21.1	43.1	9.0	16.5	20.0	43.1
50	15.7	21.6	15.8	21.5	13.7	15.4	18.9	17.7	20.0	4.2	19.6	42.9	11.5	17.7	21.6	42.9
51	16.4	23.3	16.8	23.0	14.4	16.3	20.6	18.6	21.3	4.7	19.4	42.8	11.4	18.8	23.3	42.8
52	17.6	25.2	17.9	24.7	15.1	17.4	21.9	19.1	22.2	5.0	19.5	42.1	14.3	20.1	25.2	42.1
53	18.5	27.0	19.0	26.0	15.8	18.5	23.9	20.0	23.2	5.4	19.7	40.9	15.7	21.2	27.0	40.9
54	19.3	28.6	20.1	27.6	16.6	19.3	25.2	21.0	24.4	6.1	19.7	41.4	16.3	22.4	28.6	41.4
55	20.2	30.2	21.2	29.0	17.4	20.1	26.6	21.5	25.5	6.8	20.1	45.3	18.0	23.6	30.2	45.3
56	21.2	31.9	22.3	30.5	18.2	21.1	27.8	22.5	26.8	8.0	20.3	44.5	18.2	24.8	31.9	44.5

Elapsed time	TEMPERATURE RISE AT POINTS, °C													ΔT_{avg} pts.: Std. 1-5,	ΔT_{max} pts.: Std. 1-9	$\Delta T_{max\ frame}$ pts.: 10-13
	Standard procedure															
	Doorset									Frame						
	1	2	3	4	5	6	7	8	9	10	11	12	13	°C	°C	°C
57	22.0	33.5	23.2	31.9	19.1	22.1	29.0	23.2	27.9	9.0	20.4	41.8	19.1	25.9	33.5	41.8
58	23.1	35.0	24.3	33.3	19.9	23.4	30.9	24.1	29.2	10.1	21.1	40.8	20.0	27.1	35.0	40.8
59	24.0	36.4	25.4	34.7	20.7	24.3	32.0	25.1	30.5	11.0	20.4	39.8	20.3	28.2	36.4	39.8
60	25.0	37.8	26.5	36.0	21.5	25.4	33.3	25.7	32.1	11.4	19.5	37.0	21.1	29.3	37.8	37.0
61	26.0	39.2	27.3	37.1	22.1	26.6	34.8	26.5	33.0	12.5	19.7	36.6	23.7	30.3	39.2	36.6
62	27.2	40.5	28.4	38.4	23.0	27.7	36.2	27.1	34.3	13.3	19.7	36.3	26.3	31.5	40.5	36.3
63	28.3	41.9	29.5	39.7	23.8	29.1	37.7	28.1	35.5	15.0	19.7	34.4	27.0	32.6	41.9	34.4
64	29.5	43.2	30.5	40.7	24.6	30.4	39.1	28.7	36.8	15.3	20.0	35.7	27.4	33.7	43.2	35.7
65	30.7	44.3	31.5	41.8	25.4	31.5	40.7	29.6	38.0	16.6	20.6	37.3	27.4	34.7	44.3	37.3
66	32.1	45.3	32.5	42.9	26.1	32.6	41.9	30.5	39.4	16.9	20.3	37.7	26.2	35.8	45.3	37.7
67	33.6	46.2	33.5	43.8	26.9	34.1	43.3	31.5	40.6	17.8	20.7	36.2	25.5	36.8	46.2	36.2
68	35.2	47.2	34.5	44.5	27.9	35.6	44.6	32.4	41.8	18.5	20.7	33.8	24.4	37.8	47.2	33.8
69	37.0	47.9	35.4	45.4	28.7	36.9	45.8	33.3	43.1	19.2	20.9	32.6	23.2	38.9	47.9	32.6
70	38.6	48.6	36.2	46.2	29.6	38.4	46.8	34.2	43.9	22.4	21.2	30.8	24.2	39.8	48.6	30.8
71	40.2	48.9	37.1	47.0	30.5	39.8	47.7	35.3	45.2	23.6	20.8	28.6	23.4	40.7	48.9	28.6

Elapsed time	TEMPERATURE RISE AT POINTS, °C													ΔT_{avg} pts.: Std. 1-5,	ΔT_{max} pts.: Std. 1-9	$\Delta T_{max\ frame}$ pts.: 10-13
	Standard procedure															
	Doorset									Frame						
	1	2	3	4	5	6	7	8	9	10	11	12	13	°C	°C	°C
72	42.2	49.4	37.9	47.7	31.3	41.5	48.5	36.5	46.2	24.6	20.6	27.1	22.1	41.7	49.4	27.1
73	44.0	50.1	38.8	48.4	32.4	43.3	49.5	37.5	47.3	28.0	23.2	25.7	21.0	42.7	50.1	28.0
74	45.8	50.5	39.7	49.2	33.4	44.9	49.9	38.6	48.4	29.3	24.6	24.6	21.3	43.7	50.5	29.3
75	47.7	51.1	40.4	50.2	34.6	46.5	50.7	39.8	49.6	30.8	25.2	23.7	20.2	44.8	51.1	30.8
76	49.5	51.5	41.1	50.4	35.6	48.2	51.3	41.0	50.7	32.1	25.6	23.4	19.8	45.6	51.5	32.1
77	51.3	51.7	41.8	51.1	36.7	49.5	52.1	42.1	51.2	33.3	26.7	23.2	19.8	46.5	52.1	33.3
78	52.6	52.0	42.5	51.4	37.8	50.9	52.5	43.0	52.2	35.2	28.0	22.6	20.4	47.3	52.6	35.2
79	53.9	52.1	43.1	51.8	38.9	52.0	53.1	44.2	52.7	36.5	28.9	22.2	19.8	48.0	53.9	36.5
80	54.7	52.3	43.8	52.4	40.2	53.3	53.3	45.1	53.4	36.8	29.5	22.2	19.6	48.7	54.7	36.8
81	55.8	52.4	44.4	52.8	41.5	54.5	53.5	45.8	54.2	37.1	29.4	22.1	18.7	49.4	55.8	37.1
82	57.6	52.6	44.8	53.2	42.7	55.6	53.6	46.6	54.5	38.0	30.0	22.1	18.6	50.2	57.6	38.0
83	58.4	52.9	45.3	53.9	43.9	56.4	53.9	47.3	54.8	38.5	31.1	22.1	18.4	50.9	58.4	38.5
84	58.9	52.9	45.9	54.2	45.0	57.0	54.1	47.9	55.1	39.9	32.1	22.5	18.4	51.4	58.9	39.9
85	59.7	53.1	46.4	54.4	46.1	57.6	54.0	48.5	55.5	40.6	33.9	22.6	18.5	52.0	59.7	40.6
86	60.4	53.3	46.9	54.9	47.2	58.2	54.1	48.9	55.7	40.5	34.4	22.6	18.6	52.5	60.4	40.5

Elapsed time	*TEMPERATURE RISE AT POINTS, °C*													ΔT_{avg} *pts.: Std. 1-5,*	ΔT_{max} *pts.: Std. 1-9*	$\Delta T_{max\ frame}$ *pts.: 10-13*
	Standard procedure															
	Doorset									*Frame*						
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*°C*	*°C*	*°C*
87	61.0	53.5	47.4	55.4	48.1	58.5	54.0	49.6	56.1	40.8	34.4	23.0	18.8	53.1	61.0	40.8
88	61.5	53.6	47.6	55.2	48.9	58.7	53.9	50.1	55.9	40.0	35.2	23.4	18.3	53.4	61.5	40.0
89	61.7	53.7	48.0	55.7	49.6	58.3	54.0	50.6	55.9	39.1	35.7	24.1	18.3	53.7	61.7	39.1
90	61.8	53.8	48.3	56.6	50.3	57.0	54.0	50.6	55.5	38.8	36.4	24.3	18.4	54.2	61.8	38.8
91	61.9	53.6	48.7	56.9	50.7	56.3	54.2	51.2	55.2	39.0	37.2	24.7	18.8	54.4	61.9	39.0
92	61.8	53.9	49.1	56.7	51.5	55.3	54.6	51.4	54.5	38.8	38.1	25.2	18.5	54.6	61.8	38.8
93	61.8	54.1	49.4	56.6	52.1	54.1	55.2	51.6	53.6	38.8	38.4	25.7	18.9	54.8	61.8	38.8
94	61.6	54.4	49.8	56.1	52.6	53.6	56.2	52.0	52.7	38.9	39.9	26.1	19.7	54.9	61.6	39.9
95	60.7	54.1	50.2	56.3	52.9	53.6	56.7	52.4	52.4	38.5	40.9	26.5	20.3	54.8	60.7	40.9
96	59.6	54.0	50.6	56.3	53.1	53.8	57.2	52.7	52.6	38.5	41.8	26.9	20.3	54.7	59.6	41.8
97	58.2	53.3	50.8	57.3	53.5	54.5	57.0	53.1	53.3	38.6	41.5	28.5	20.5	54.6	58.2	41.5
98	56.4	53.5	50.7	57.1	54.0	55.1	57.1	53.2	52.3	39.2	43.5	29.0	21.2	54.4	57.1	43.5
99	54.8	53.4	49.9	56.9	53.7	56.0	57.3	51.6	50.0	39.4	45.4	29.6	20.9	53.8	57.3	45.4
100	53.9	53.7	50.5	56.7	53.8	57.1	57.3	52.2	51.3	39.2	46.0	30.6	24.1	53.7	57.3	46.0

Table 13. Door 16

Elapsed time	*TEMPERATURE RISE AT POINTS, °C*													ΔT_{avg} *pts.: Std. 14-18,*	ΔT_{max} *pts.: Std. 14-22*	$\Delta T_{max\ frame}$ *pts.: 23-26*
	Standard procedure															
	Doorset									*Frame*						
	14	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	*25*	*26*	*°C*	*°C*	*°C*
0	-0.1	0.4	0.5	0.2	-0.3	0.0	0.4	0.6	-0.1	-0.5	-0.3	0.2	-0.5	0.1	0.6	0.2
1	-0.1	0.5	0.6	0.1	-0.2	0.1	0.4	5.1	-0.2	-0.4	-0.2	0.5	-0.4	0.2	5.1	0.5
2	-0.1	0.4	0.6	0.1	-0.3	0.0	0.4	3.9	-0.1	-0.4	-0.1	0.5	-0.5	0.1	3.9	0.5
3	0.0	0.6	0.7	0.2	-0.3	0.0	0.4	5.7	0.0	-0.4	-0.1	1.2	-0.5	0.2	5.7	1.2
4	-0.1	0.4	0.6	0.2	-0.2	0.1	0.4	6.6	-0.1	-0.5	-0.1	2.2	-0.5	0.2	6.6	2.2
5	-0.1	0.5	0.5	0.2	-0.3	0.0	0.5	5.2	-0.1	-0.4	-0.2	2.4	-0.5	0.2	5.2	2.4
6	0.0	0.5	0.6	0.3	-0.2	0.1	0.5	3.4	0.0	-0.4	-0.1	2.8	-0.5	0.2	3.4	2.8
7	-0.1	0.5	0.6	0.3	-0.1	0.1	0.6	4.4	-0.1	-0.5	-0.1	2.8	-0.5	0.2	4.4	2.8
8	-0.1	0.6	0.7	0.4	-0.1	0.2	0.5	4.4	0.0	-0.5	-0.2	3.0	-0.4	0.3	4.4	3.0
9	-0.1	0.4	0.7	0.3	-0.2	0.1	0.6	3.3	0.0	-0.4	-0.1	3.0	-0.5	0.2	3.3	3.0
10	0.0	0.5	0.6	0.2	-0.2	0.1	0.6	2.7	0.0	-0.5	-0.1	3.2	-0.5	0.2	2.7	3.2
11	-0.1	0.5	0.7	0.4	-0.1	0.2	0.7	2.5	0.1	-0.4	-0.1	3.5	-0.4	0.3	2.5	3.5
12	0.2	0.6	0.8	0.5	-0.1	0.2	0.7	2.3	0.1	-0.4	-0.1	3.7	-0.3	0.4	2.3	3.7
13	0.2	0.6	0.8	0.5	0.0	0.3	0.9	2.3	0.1	-0.4	-0.1	4.0	-0.4	0.4	2.3	4.0

Elapsed time	*TEMPERATURE RISE AT POINTS, °C*													ΔT_{avg} *pts.: Std. 14-18,*	ΔT_{max} *pts.: Std. 14-22*	$\Delta T_{max\ frame}$ *pts.: 23-26*
	Standard procedure															
	Doorset									*Frame*						
	14	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	*25*	*26*	*°C*	*°C*	*°C*
14	0.2	0.7	0.8	0.5	0.0	0.5	0.9	2.4	0.2	-0.4	-0.1	3.7	-0.4	0.4	2.4	3.7
15	0.2	0.8	0.8	0.5	0.0	0.5	0.7	2.3	0.1	-0.4	-0.1	3.6	-0.4	0.5	2.3	3.6
16	0.3	0.8	0.9	0.6	0.1	0.5	0.9	2.4	0.3	-0.3	0.0	3.6	-0.4	0.5	2.4	3.6
17	0.3	0.8	0.8	0.7	0.1	0.7	0.9	2.2	0.3	-0.3	-0.2	3.1	-0.4	0.5	2.2	3.1
18	0.3	0.8	0.8	0.7	0.2	0.7	1.2	2.4	0.3	-0.3	0.0	2.9	-0.4	0.6	2.4	2.9
19	0.4	0.9	0.9	0.7	0.3	0.6	1.1	2.4	0.5	-0.3	0.0	2.7	-0.4	0.6	2.4	2.7
20	0.4	1.0	1.1	0.7	0.3	0.7	1.3	2.4	0.5	-0.3	0.0	2.7	-0.3	0.7	2.4	2.7
21	0.4	1.0	1.1	0.8	0.3	0.9	1.3	2.4	0.5	-0.3	-0.1	2.7	-0.3	0.7	2.4	2.7
22	0.6	1.2	1.3	0.9	0.5	1.0	1.6	2.6	0.7	-0.3	0.0	2.6	-0.3	0.9	2.6	2.6
23	0.6	1.2	1.4	1.0	0.5	1.1	1.7	2.7	0.8	-0.3	0.0	2.5	-0.3	0.9	2.7	2.5
24	0.7	1.3	1.5	1.1	0.6	1.2	1.9	2.8	1.0	-0.3	0.0	2.4	-0.3	1.0	2.8	2.4
25	0.9	1.5	1.7	1.4	0.8	1.5	2.2	2.9	1.3	-0.2	0.0	2.4	-0.3	1.3	2.9	2.4
26	1.1	1.8	1.9	1.5	0.9	1.8	2.5	3.0	1.5	-0.3	0.0	2.3	-0.2	1.5	3.0	2.3
27	1.2	2.0	2.1	1.8	1.2	2.2	2.8	3.3	1.8	-0.2	0.1	2.3	-0.3	1.7	3.3	2.3
28	1.4	2.3	2.5	1.9	1.4	2.6	3.3	3.6	2.1	-0.2	0.0	2.2	-0.3	1.9	3.6	2.2

Elapsed time	*TEMPERATURE RISE AT POINTS, °C*													ΔT_{avg} *pts.: Std. 14-18,*	ΔT_{max} *pts.: Std. 14-22*	$\Delta T_{max\ frame}$ *pts.: 23-26*
	Standard procedure															
	Doorset									*Frame*						
	14	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	*25*	*26*	*°C*	*°C*	*°C*
29	1.7	2.7	2.8	2.2	1.6	3.0	3.7	3.8	2.4	-0.2	0.2	2.1	-0.3	2.2	3.8	2.1
30	2.1	3.1	3.3	2.5	2.0	3.4	4.2	4.2	2.7	-0.3	0.2	2.2	-0.2	2.6	4.2	2.2
31	2.3	3.4	3.6	2.9	2.2	4.0	4.6	4.6	3.2	-0.3	0.2	2.2	-0.2	2.9	4.6	2.2
32	2.7	4.0	4.1	3.3	2.6	4.5	5.3	5.1	3.6	-0.2	0.3	2.1	-0.3	3.4	5.3	2.1
33	3.0	4.3	4.6	3.5	2.9	5.1	5.8	5.6	4.1	-0.2	0.3	2.1	-0.3	3.7	5.8	2.1
34	3.4	4.8	5.0	4.0	3.5	5.8	6.5	19.0	4.6	-0.2	0.2	2.4	-0.3	4.2	19.0	2.4
35	3.8	5.4	5.5	4.7	3.9	6.4	7.1	11.0	5.3	-0.1	0.4	2.3	-0.2	4.7	11.0	2.3
36	4.4	6.1	6.2	5.2	4.5	7.0	7.7	8.9	5.8	-0.1	0.5	2.4	-0.2	5.3	8.9	2.4
37	4.8	6.7	6.7	5.6	5.1	7.7	8.4	8.6	6.5	-0.2	0.4	2.2	-0.2	5.8	8.6	2.2
38	5.5	7.4	7.4	6.3	5.9	8.5	9.1	8.8	7.1	-0.2	0.6	2.3	-0.1	6.5	9.1	2.3
39	6.0	8.1	8.0	7.0	6.4	9.2	9.9	9.2	7.8	-0.2	0.7	2.3	-0.2	7.1	9.9	2.3
40	6.6	8.9	8.9	7.6	7.2	10.0	10.8	9.8	8.5	-0.2	0.8	2.3	-0.1	7.9	10.8	2.3
41	7.2	9.8	9.7	8.3	7.9	10.8	11.5	10.6	9.2	-0.1	0.9	2.3	-0.1	8.6	11.5	2.3
42	7.9	10.8	10.7	9.3	8.9	11.7	12.4	11.4	9.8	-0.1	0.9	2.4	-0.1	9.5	12.4	2.4
43	8.7	11.8	11.9	10.0	9.7	12.5	13.2	12.2	10.6	0.0	1.1	2.6	-0.1	10.4	13.2	2.6

Elapsed time	TEMPERATURE RISE AT POINTS, °C													ΔT_{avg} pts.: Std. 14-18,	ΔT_{max} pts.: Std. 14-22	$\Delta T_{max\ frame}$ pts.: 23-26
	Standard procedure															
	Doorset									Frame						
	14	15	16	17	18	19	20	21	22	23	24	25	26	°C	°C	°C
44	9.4	12.9	12.9	11.0	10.7	13.5	14.2	13.1	11.3	-0.1	1.0	2.6	0.0	11.4	14.2	2.6
45	10.1	13.9	14.0	11.8	11.8	14.3	15.0	14.1	12.1	0.0	1.2	2.8	0.0	12.4	15.0	2.8
46	10.9	15.1	15.2	12.8	12.7	15.3	15.9	15.0	12.9	0.1	1.4	2.8	-0.1	13.4	15.9	2.8
47	11.7	16.3	16.6	13.6	13.8	16.1	16.9	16.1	13.7	0.2	1.7	2.9	0.0	14.4	16.9	2.9
48	12.4	17.5	18.1	14.4	15.0	17.3	17.8	17.2	14.4	0.2	1.7	3.1	0.0	15.5	18.1	3.1
49	13.3	19.0	19.7	15.3	16.1	18.2	18.6	18.5	15.2	0.1	1.8	3.1	0.1	16.7	19.7	3.1
50	14.1	20.3	21.2	16.0	17.1	19.1	19.3	19.6	16.0	0.2	1.9	3.5	0.2	17.7	21.2	3.5
51	14.9	21.7	22.7	17.0	18.4	20.1	20.1	20.9	16.9	0.3	2.1	3.4	0.2	18.9	22.7	3.4
52	15.7	23.1	24.4	17.8	19.6	21.0	21.0	22.1	17.7	0.3	2.3	3.6	0.2	20.1	24.4	3.6
53	16.6	24.4	25.8	18.8	20.9	22.0	21.8	23.5	18.7	0.4	2.4	3.7	0.2	21.3	25.8	3.7
54	17.4	25.7	27.5	19.7	22.2	23.1	22.5	25.0	19.5	0.4	2.7	4.0	0.4	22.5	27.5	4.0
55	18.3	27.0	29.2	20.6	23.4	24.2	23.5	26.5	20.4	0.5	2.8	4.1	0.3	23.7	29.2	4.1
56	19.0	28.2	30.8	21.6	24.8	25.2	24.4	28.0	21.2	0.5	3.2	4.4	0.4	24.8	30.8	4.4
57	19.9	29.5	32.4	22.5	26.3	26.3	25.2	29.6	22.1	0.6	3.3	4.4	0.5	26.1	32.4	4.4
58	20.8	30.7	33.8	23.5	27.8	27.4	26.1	31.3	23.1	0.7	3.5	4.6	0.5	27.3	33.8	4.6

Elapsed time	*TEMPERATURE RISE AT POINTS, °C*													ΔT_{avg} *pts.: Std. 14-18,*	ΔT_{max} *pts.: Std. 14-22*	$\Delta T_{max\ frame}$ *pts.: 23-26*
	Standard procedure															
	Doorset									*Frame*						
	14	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	*25*	*26*	*°C*	*°C*	*°C*
59	21.8	31.8	35.8	24.5	29.5	28.6	27.0	33.0	24.0	0.8	3.9	4.9	0.6	28.7	35.8	4.9
60	22.6	32.9	37.4	25.5	31.3	29.8	27.8	35.1	24.9	0.9	4.2	5.0	0.6	29.9	37.4	5.0
61	23.4	34.0	39.1	26.2	32.8	30.9	28.5	37.0	25.9	1.0	4.3	5.2	0.7	31.1	39.1	5.2
62	24.3	34.9	40.8	27.1	34.8	32.1	29.6	39.5	27.0	1.3	4.7	5.4	0.9	32.4	40.8	5.4
63	25.2	36.0	42.5	28.0	36.6	33.3	30.3	42.0	28.1	1.3	4.9	5.5	1.0	33.6	42.5	5.5
64	26.0	36.9	44.1	28.8	38.5	34.6	31.4	44.6	29.0	1.4	5.2	5.7	1.1	34.8	44.6	5.7
65	26.9	37.7	45.3	29.6	40.4	35.9	32.3	47.1	30.0	1.5	5.2	6.0	1.2	36.0	47.1	6.0
66	27.8	38.5	46.8	30.7	42.5	37.4	33.4	49.6	31.0	1.7	5.7	6.1	1.2	37.3	49.6	6.1
67	28.7	39.5	47.9	31.6	44.2	38.6	34.3	51.7	32.1	2.0	6.1	6.5	1.3	38.4	51.7	6.5
68	29.5	40.3	49.0	32.5	46.1	40.1	35.3	53.3	33.1	2.0	6.0	6.7	1.5	39.5	53.3	6.7
69	30.5	41.2	49.9	33.3	47.8	41.5	36.4	54.4	34.2	2.3	6.4	6.9	1.5	40.5	54.4	6.9
70	31.3	41.8	50.7	34.2	49.6	43.0	37.9	55.6	35.4	2.4	6.5	7.2	1.6	41.5	55.6	7.2
71	32.1	42.4	51.4	35.0	50.9	44.4	39.2	56.5	36.7	2.6	6.7	7.5	1.8	42.4	56.5	7.5
72	33.1	43.0	51.9	35.7	52.2	45.7	40.3	57.2	38.1	2.7	7.1	7.7	1.9	43.2	57.2	7.7
73	34.1	43.8	52.6	36.7	53.5	47.3	41.3	57.6	39.5	3.0	7.5	8.1	2.1	44.2	57.6	8.1

Elapsed time	*TEMPERATURE RISE AT POINTS, °C*													ΔT_{avg} *pts.: Std. 14-18,*	ΔT_{max} *pts.: Std. 14-22*	$\Delta T_{max\ frame}$ *pts.: 23-26*
	Standard procedure															
	Doorset									*Frame*						
	14	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	*25*	*26*	*°C*	*°C*	*°C*
74	35.1	44.5	53.0	37.6	54.6	48.3	43.0	58.8	41.0	3.2	7.2	8.6	2.2	45.0	58.8	8.6
75	36.2	45.2	53.6	38.6	55.4	49.5	44.2	59.3	42.2	3.4	7.6	9.3	2.4	45.8	59.3	9.3
76	37.2	45.7	53.5	39.4	56.0	50.5	45.5	59.7	43.6	3.5	8.3	9.5	2.5	46.4	59.7	9.5
77	38.0	46.3	53.8	40.0	56.5	51.2	46.7	60.8	45.1	3.7	8.5	11.0	2.8	46.9	60.8	11.0
78	39.1	46.8	54.1	40.5	56.9	51.9	48.4	62.6	46.6	4.1	8.4	12.8	2.9	47.5	62.6	12.8
79	40.0	47.3	54.2	41.5	57.2	52.5	50.0	63.9	47.7	4.3	10.6	15.5	3.1	48.1	63.9	15.5
80	41.3	47.8	54.4	42.3	57.3	52.9	51.5	65.3	48.8	4.6	12.9	18.2	3.3	48.6	65.3	18.2
81	42.2	48.3	54.8	43.0	57.5	53.2	53.5	68.0	49.7	4.7	14.3	19.7	3.5	49.2	68.0	19.7
82	43.3	48.7	54.9	43.8	57.6	53.3	56.7	71.4	50.3	5.0	16.7	21.0	3.7	49.7	71.4	21.0
83	44.3	49.1	54.8	44.6	57.5	53.3	67.3	84.5	50.6	5.2	23.0	23.8	3.9	50.1	84.5	23.8
84	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/
85	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/
86	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/
87	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/
88	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/

Elapsed time	*TEMPERATURE RISE AT POINTS, °C*													ΔT_{avg} *pts.: Std. 14-18,*	ΔT_{max} *pts.: Std. 14-22*	$\Delta T_{max\ frame}$ *pts.: 23-26*
	Standard procedure															
	Doorset									*Frame*						
	14	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	*25*	*26*	*°C*	*°C*	*°C*
89	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/
90	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/
91	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/
92	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/
93	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/
94	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/
95	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/
96	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/
97	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/
98	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/
99	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/
100	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/	*/

*Note: */ - Thermocouples were disconnected after 83 minutes due to a failure in integrity.*

6 PHOTOGRAPHS

6.1 Unexposed side view of the test specimens

Photo 1. Before the test.

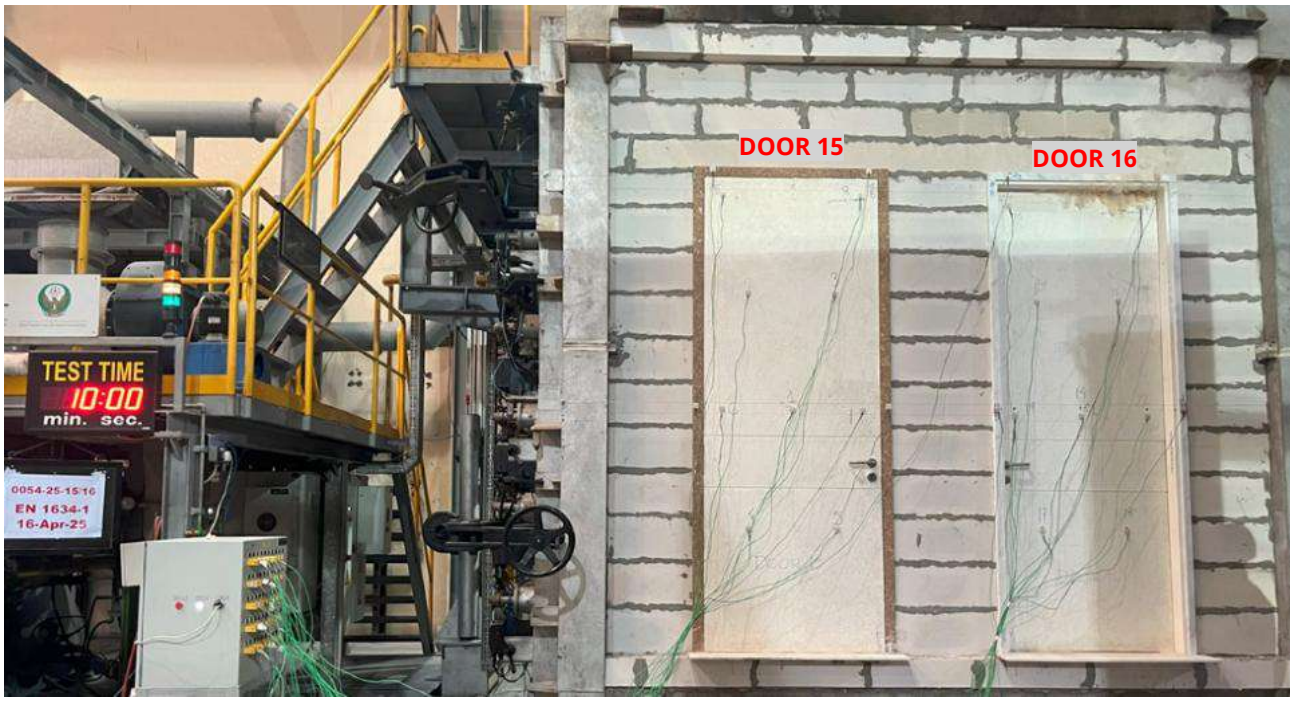


Photo 2. Test specimen at 10-minutes

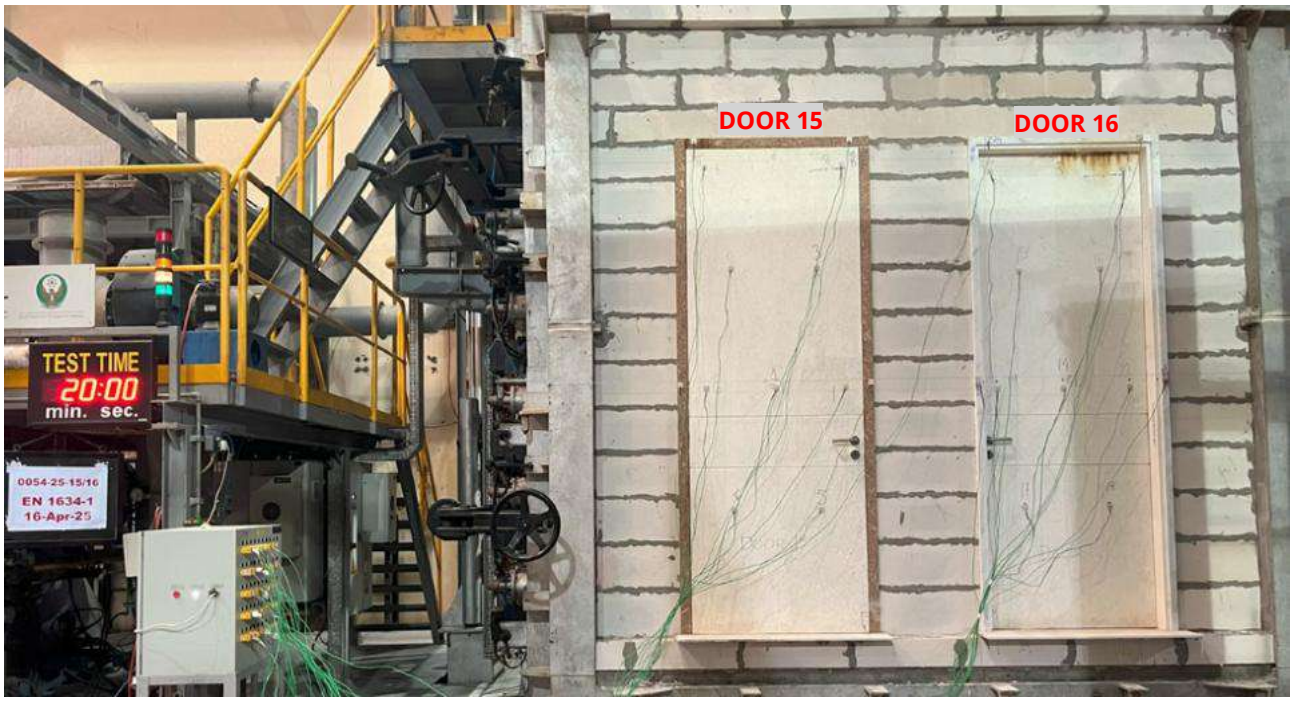


Photo 3. Test specimen at 20-minutes

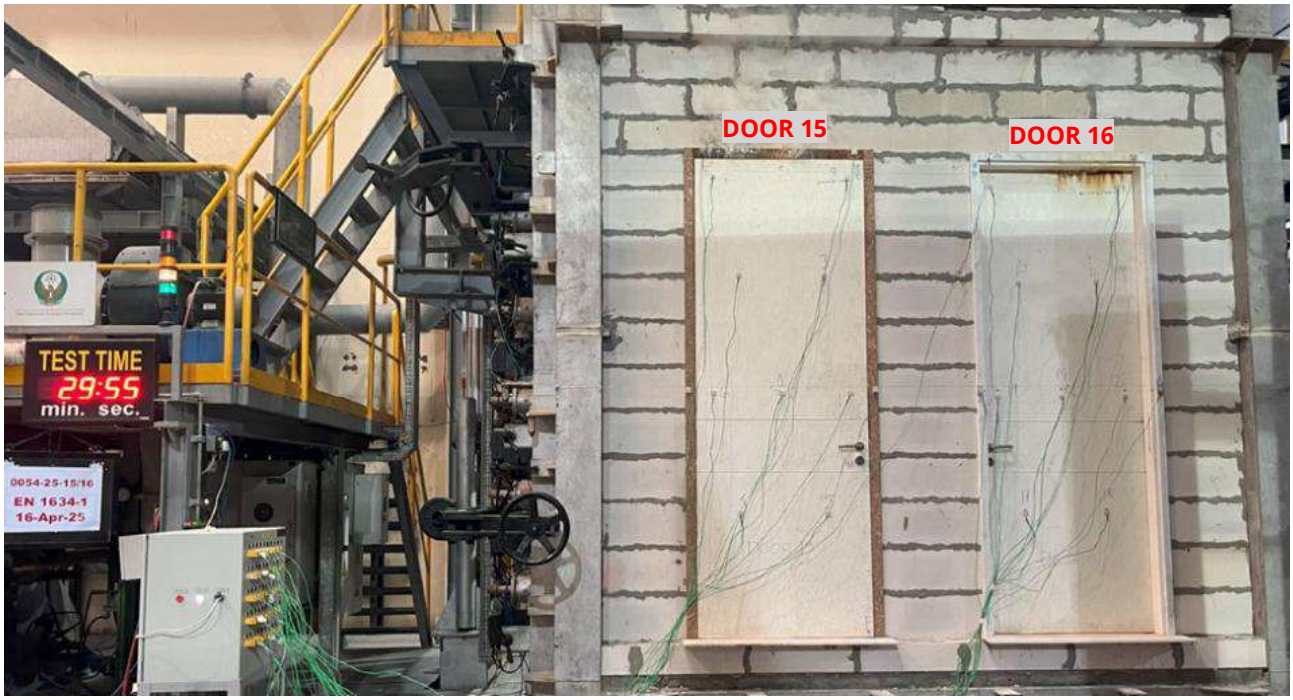


Photo 4. Test specimen at 29-minutes

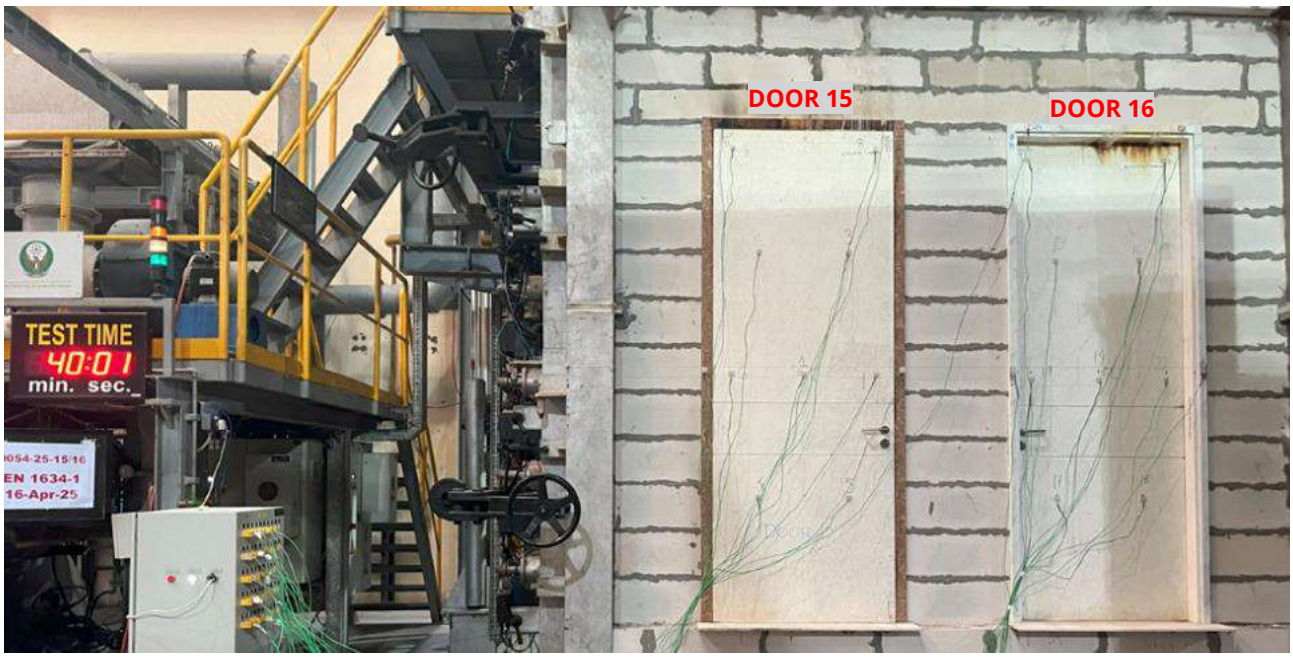


Photo 5. Test specimen at 40-minutes

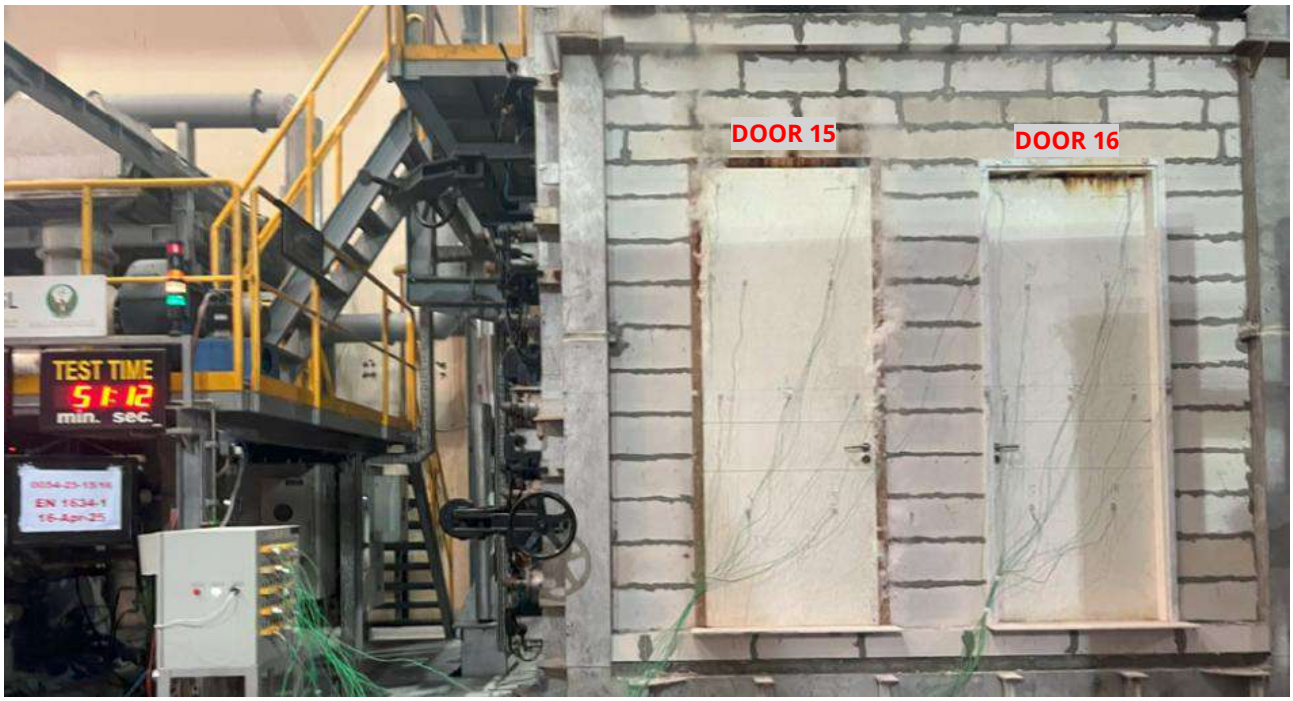


Photo 6. Test specimen at 51-minutes

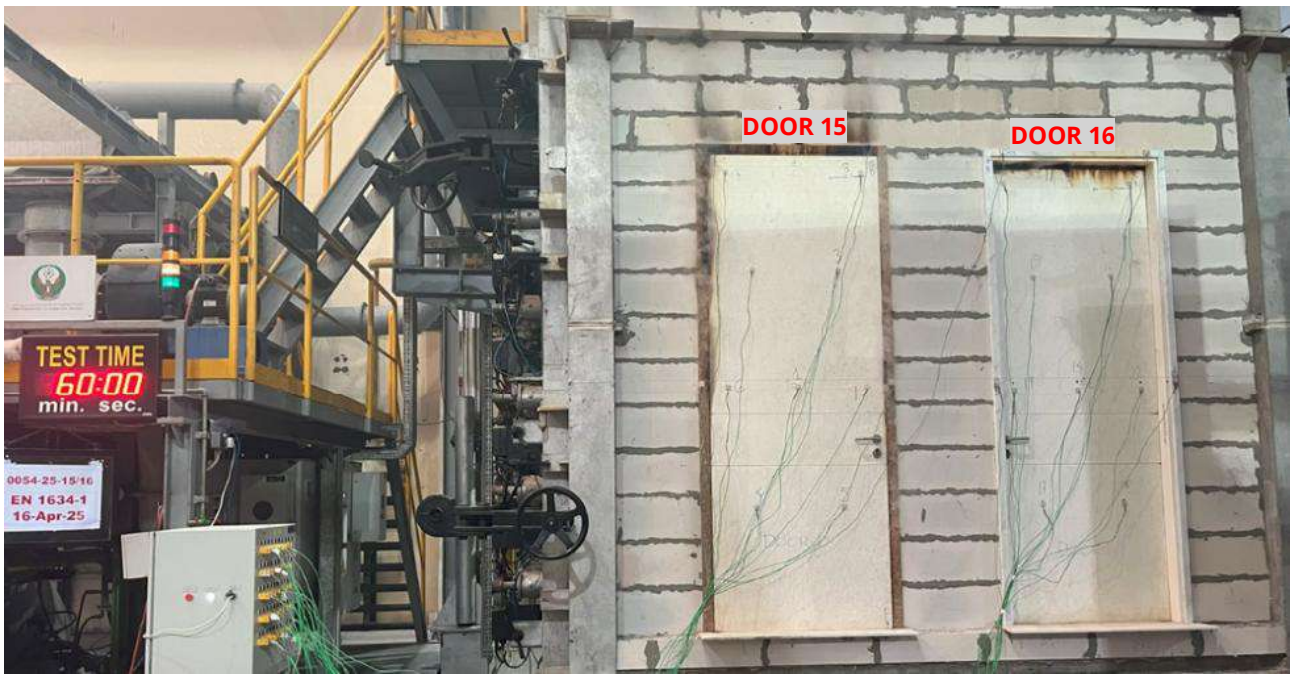


Photo 7. 60-minutes of the test

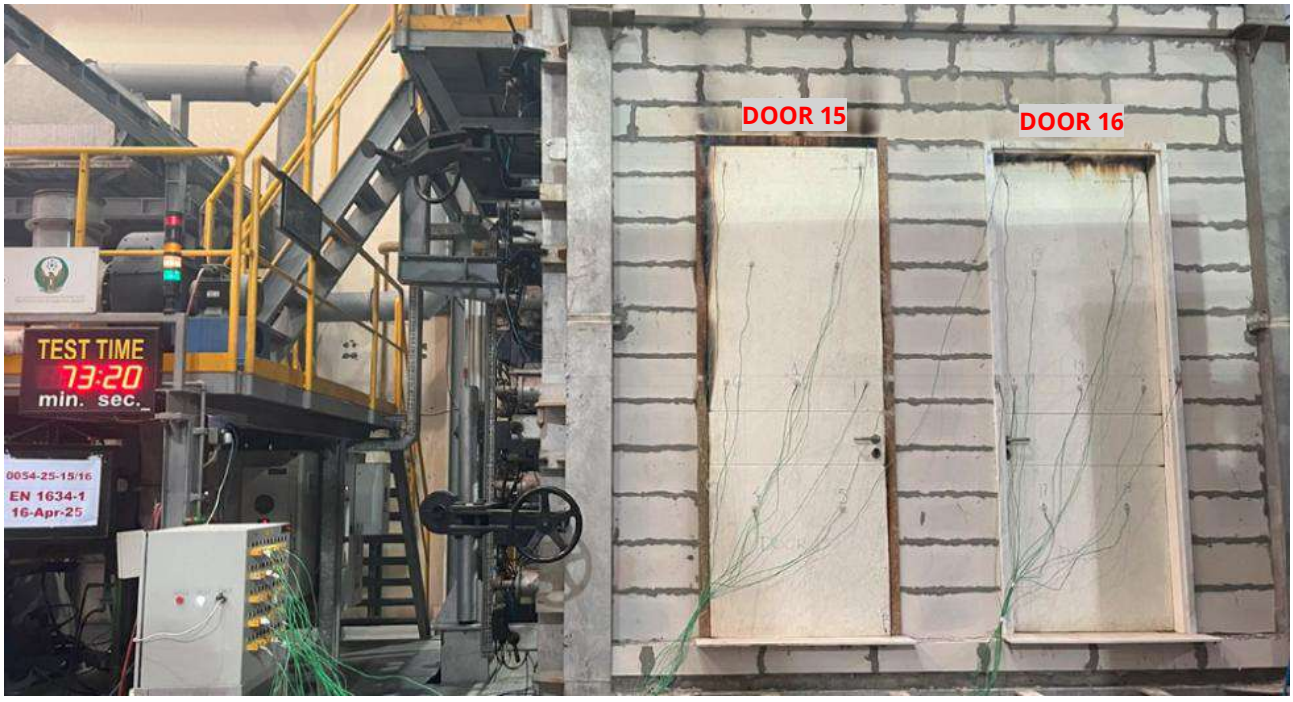


Photo 8. 73-minutes of the test

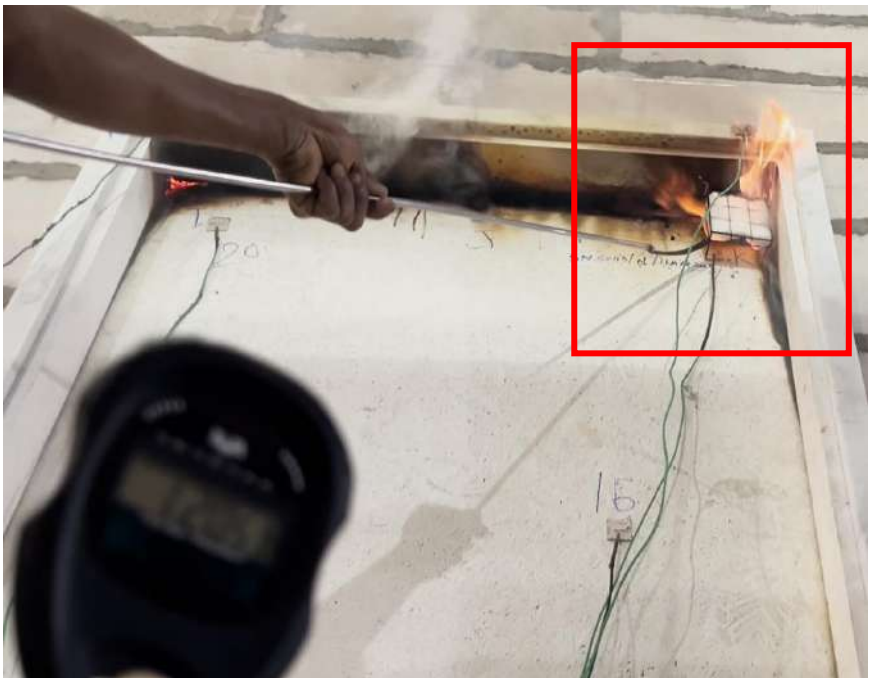


Photo 9. 80[51] minutes of the test. Integrity failure. Ignition of cotton pad at the upper right corner of the leaf – Door 16.

Photo 10. 81[40] minutes of the test. Integrity failure. Sustained flaming at the upper right corner of the leaf – Door 16.

Photo 11. 73-minutes of the test

Photo 12. 90-minutes of the test

Photo 13. End of the test

6.2 Exposed side view of the test specimens

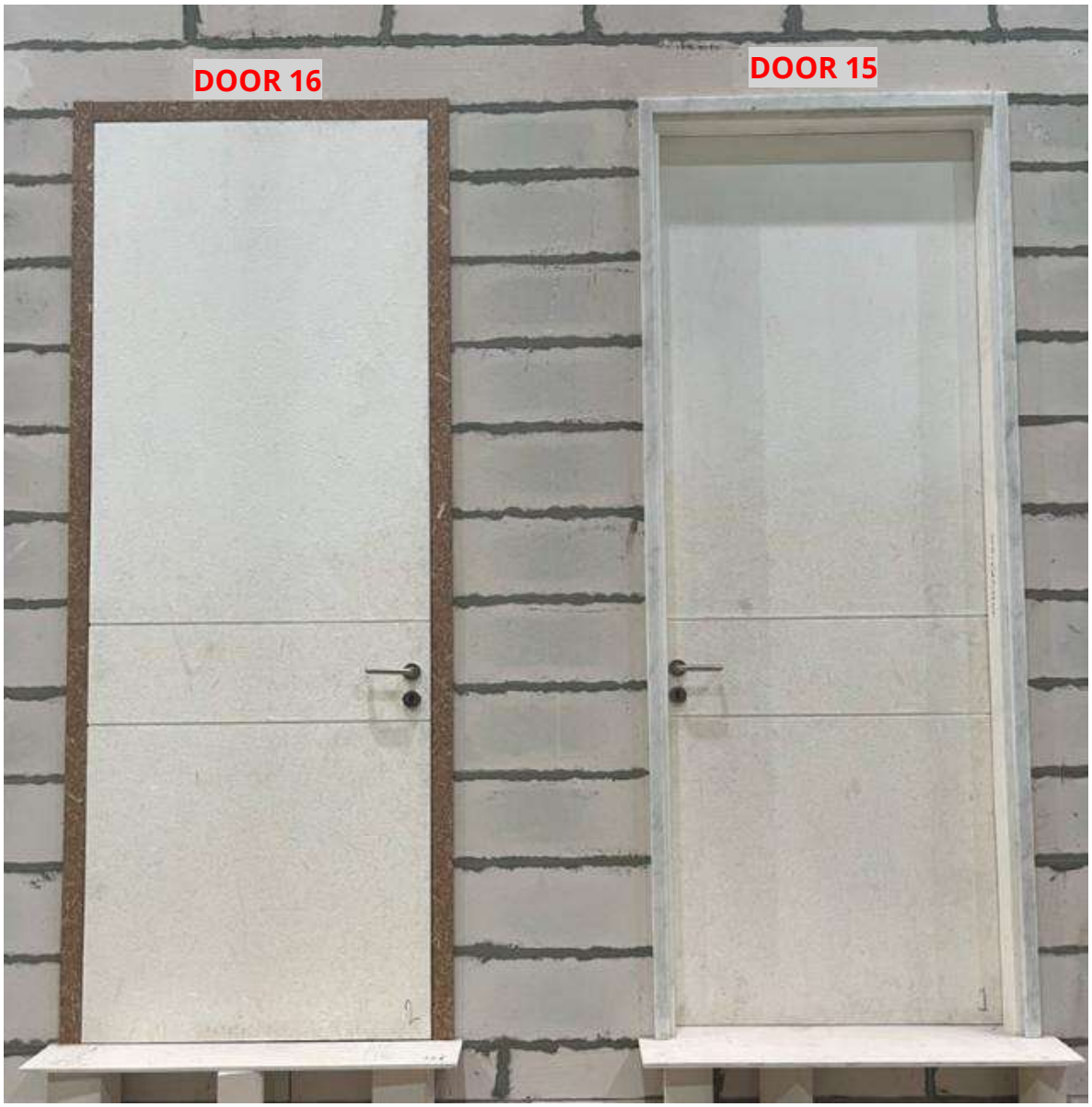


Photo 14. Before the test

7 SUMMARY OF TEST RESULTS

Results of fire resistance test of the "Latched, Single Action, Single Door Fire-Rated PSB Wooden Door with hardwood frame & stone-clad architrave" type presented in Tables 1-14, Graphs 1-4, Figures 1-7, and Photo 1-14 refer only to the construction described in clause 3 of herein test report.

Table 14. Summary of the test results

Performance criteria	Description of the criterion requirements	Time and location of criterion failure		Test result	
		Door 15	Door 16	Door 15	Door 16
Integrity	Sustained flaming	No failure	**81[40] sustained flaing at the upper right corner of the leaf.**	**100 minutes**	**80 minutes**
	Gaps disqualifying the product	No failure	No failure		
	Ignition of the cotton pad	No failure	**80[51] ignition of cotton pad at the upper right corner of the leaf.**		
Insulation *(Standard procedure)*	Average temperature rise (≤140 °C)	No failure	No failure	**100 minutes [(1)]**	**80 minutes [(1)]**
	Maximum temperature rise (≤180°C)	No failure	No failure		
	Maximum temperature rise at the door frame (≤360°C)	No failure	No failure		
Maximum Deflection				**-35mm in Point E at 100[th] minute**	**+16mm in Point K at 80[th] minute**
Duration of the test: 100 minutes					

[(1)] EN 1363-1 describes the privilege of the integrity failure against the insulation: insulation" shall automatically be assumed not to be satisfied when the "integrity" criterion ceases to be satisfied (EN 1363-1; Clause 11.4.2.).

Because of the nature of fire resistance testing and the consequent difficulty in quantifying the uncertainty of the measurement of fire resistance, it is not possible to provide a stated degree of accuracy of the result.

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. Any significant deviation with respect to size, constructional details, loads, stresses, edge, or end conditions other than those allowed under the field of direct application contained in the EN 1634-1 standard is not covered by this test report.

8 FIELD OF DIRECT APPLICATION OF TEST RESULTS

8.1 General

This is valid for the direct field of application of the test results for "Latched, Single Action, Single Door Fire-Rated PSB Wooden Door with hardwood frame & stone-clad architrave", in which the following changes can be made, according to clause 13 of EN1634-1:2014+A1: 2018. The field of direct application defines the allowable changes to the test specimens following a successful fire resistance test. These variations can be applied automatically without the need for the sponsor to seek additional evaluation, calculation, or approval.

8.2 Materials and construction

8.2.1 General

Unless otherwise stated in the following text, the materials and construction of the doorset or openable window shall be the same as that tested. The number of leaves and the mode of operation (e.g. sliding, single action or double action) shall not be changed.

8.2.2 Specific restrictions on materials and construction

8.2.2.1 Timber construction

The thickness of the door panels shall not be reduced but may be increased.

The door panel thickness and/or density may be increased provided the total increase in weight is not greater than 25 %.

For timber-based board products (e.g. particle board, blockboard, etc), the composition (e.g. type of resin) shall not change from that tested.

The cross-sectional dimensions and/or the density of the timber frames (including rebates) shall not be reduced but may be increased.

8.2.3 Decorative finishes

8.2.3.1 Paint

Where the paint finish is not expected to contribute to the fire resistance of the door, alternative paints are acceptable and may be added to door leaves or frames for which unfinished test specimens were tested. Where the paint finish contributes to the fire resistance of the door (e.g. intumescent paints) then no change shall be permitted.

8.2.3.2 Decorative laminates

Decorative laminates and timber veneers up to 1,5 mm thickness may be added to the faces (but not the edges) of doors that satisfy the insulation criteria (normal or supplementary procedure).

Decorative laminates and timber veneers applied to door leaves that do not satisfy the insulation criteria (normal or supplementary procedure) and/or those in excess of 1,5 mm thickness shall be tested as part of the test specimen. For all doorsets tested with decorative laminate faces, the only variations possible shall be within similar types and thicknesses of material (e.g., for color, pattern, and supplier).

8.2.3.3 Fixings

The number of fixings per unit length used to attach doorsets to supporting constructions may be increased but shall not be decreased and the distance between fixings may be reduced but shall not be increased.

8.2.4 Building hardware

The number of hinges may be increased but shall not be decreased.
NOTE 1: The number of movement restrictors such as locks and latches are not covered by direct application.

The doorset may be installed only with the door closer fixed to each door leaf.
NOTE 2: Interchange of building hardware is not covered by the field of direct application.

8.3 Permissible size variations

8.3.1 General

Doorsets of sizes different from those of tested specimens are permitted within certain limitations, but the variations are dependent on product type and the length of time that the performance criteria are fulfilled.

The increase and decrease of dimensions permitted by the field of direct application are applicable to the overall size and to each door leaf, each side panel and each over panel independently.

The dimensions (width and height) of any glass pane cannot be increased.

8.3.2 Test periods

The amount of variation of size permitted is dependent on whether the classification time was just reached (Category 'A') or whether an extended time (Category 'B') in accordance with the values shown Table 14.

Table 15 —Overrun time requirements

Classification time **Category A**	**Overrun time** *(all criteria must be fulfilled)* **Category B**
60min.	68min.

The Test Element fulfilled integrity criteria for **68 minutes only** (as a product tested from both sides). The tested doorset was opening inside and outside the furnace.

Therefore, the Test Specimen achieved Category B classification time as per Table 14.

8.3.3 Size variation of hinged and pivoted doorsets and openable window

Unlimited size reduction is permitted for all types except insulated metal doors where a reduction to 50 % width and 75 % height of the tested specimen is the limit of variation.

Size increase (extended size) is permitted only for the doorset (not for the glazing pane), which satisfies integrity up to 68 minutes may be increased in 15% width, 15% height, and 20% area of the tested specimen as shown in Table 13

8.3.4 Other changes

For smaller doorset sizes, the relative positioning of movement restrictors (e.g., hinges and security pin) shall remain the same as tested, or any change to the distances between them will be limited to the same percentage reduction as the decrease of test specimen size.

For larger doorset sizes the following shall also apply:

a) the height of the latch above floor level shall be equal to or greater than the tested height, and such increase in height shall be at least proportional to the increase in door height;
b) the distance of the top hinge from the top of door leaf shall be equal to or less than that tested;
c) the distance of the bottom hinge from bottom of door leaf shall be equal to or less than that tested;

where three hinges or distortion preventers are used, the distance between the bottom of the door leaf and center restraint shall be equal to or greater than that tested.

8.3.5 Timber constructions

The number, size, location and orientation of any joints in the timber framing shall not be changed.

Where decorative veneers of 1,5 mm or greater thickness, or other claddings which themselves provide constructive benefits, are part of the test specimen, they shall not be substituted with alternatives of lesser thickness or strength.

8.3.6 Gaps

The maximum size of the primary gaps is restricted to the following sizes in practice**:**

Table 16

GAPS			***Measurements, mm***		
			Average	***Maximum***	***Permitted gap size***
Door 15 & Door 16	Along the horizontal edges	At the top	2.5	3.0	4.6
		At the bottom	3.7	5.1	6.1
	Along the vertical edges	Hinge side	2.8	3.4	5.0
		Latch edge	2.6	3.1	4.8

8.4 Supporting constructions

8.4.1 General

The Fire resistance of a doorset tested in 150mm thick low-density rigid standard supporting construction (autoclaved aerated concrete blocks), as specified in EN 1363-1, can be applied to a doorset mounted in the same manner in a wall provided the density and the thickness of the wall are equal to or greater than that in which the door was tested.

8.4.2 Specific rules for hinged or pivoted doorsets

For timber door leaves hung in timber frames, the result of a test in a rigid standard supporting construction applies to that door assembly mounted in a flexible construction.

Note: The rules above assume that the fixing methods used in each type of supporting construction are appropriate to that construction.

Further details of the field of direct application of test results are described in EN 1634-1:2014+A1:2018.

9 DRAWINGS

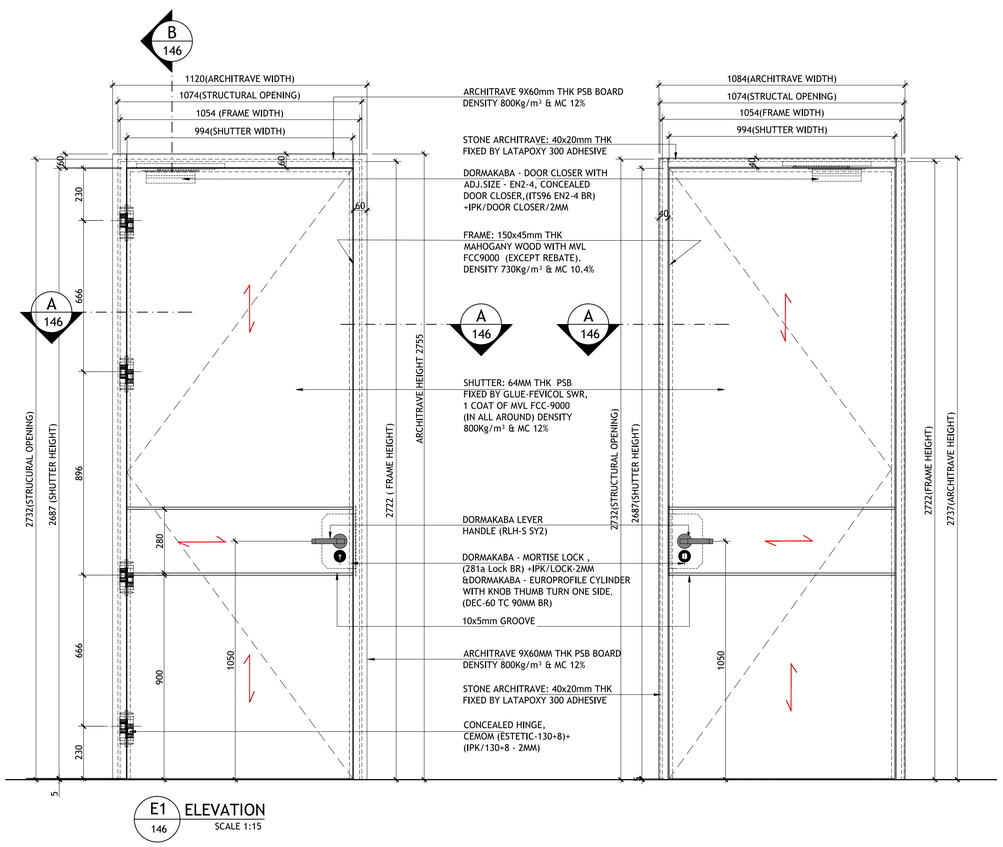
The unpaginated document is a copy of the drawings from Abanos Furniture & Decoration Industry LLC, specifically the drawing reference ID:

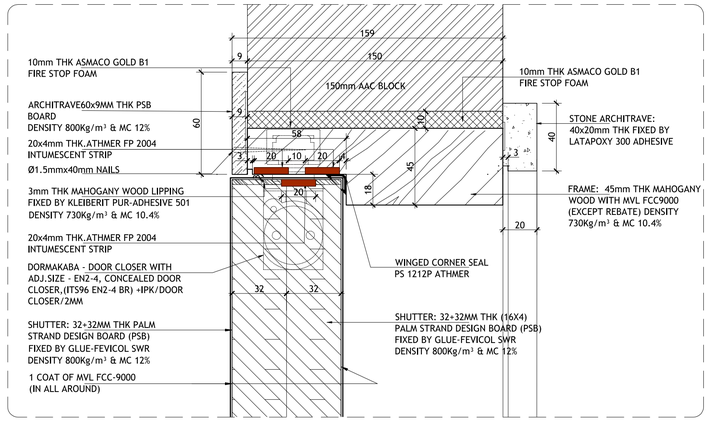
- No. ABS00094-STD-FR-90-PSB-146 R01 (dated 24-06-2025)

10 ATTACHMENTS

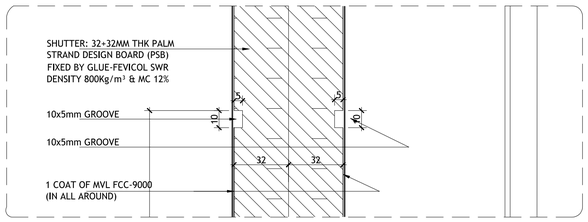
Technical documentation

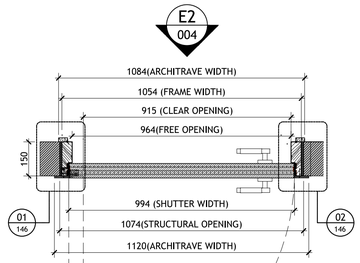
- African Mahogany Wood
- 32mm thick, Desert Board, PSB
- Pidilite Fevicol SWR
- Kleiberit 501.0 PUR adhesive
- Ritver wood glue
- Athmer FP 2004
- Athmer Graphite Liner
- Athmer PS1212P - Corner seal
- Asmaco Gold B1Fire Retardant Foam
- FCC-9000 Flame Core Coat
- MT WERKZ – Screws
- Athmer – Drop seal
- East White Marble
- Latapoxy 360
- Ironmongery



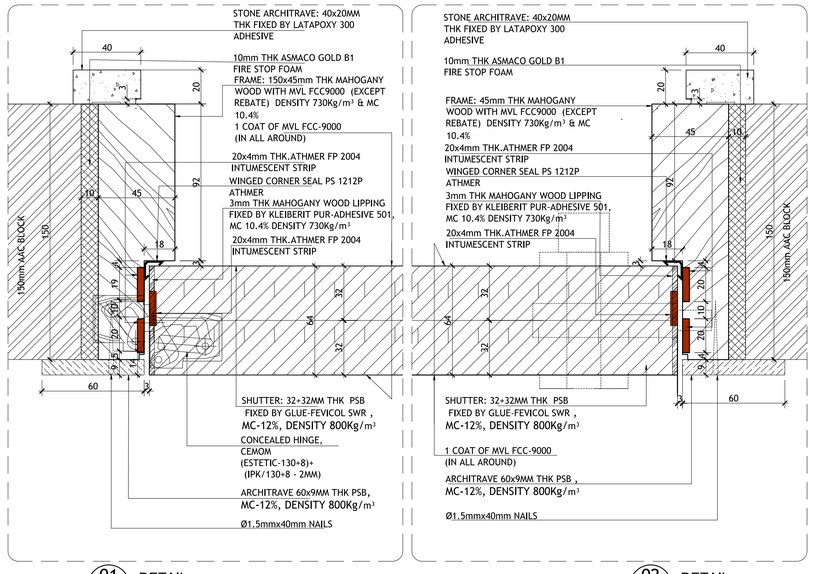


04 146 DETAIL SCALE 1:2





A 146 SECTIONAL PLAN SCALE 1:15



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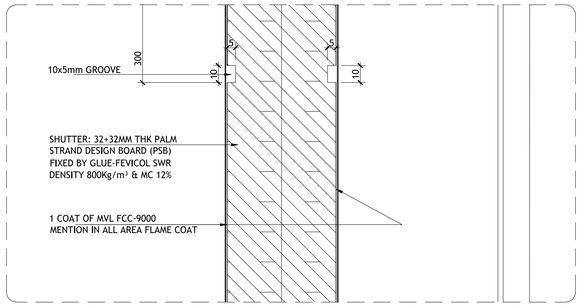
02 146 DETAIL SCALE 1:2



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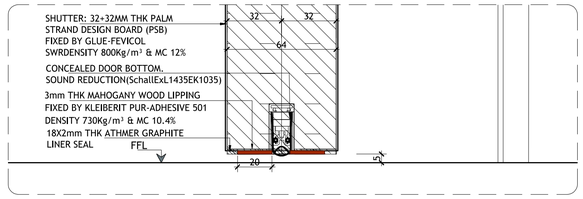


06 146 DETAIL SCALE 1:2

NOTE:-MVL FCC-9000
FLAME COAT TO BE APPLIED
FRAME, SHUTTER

NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE NOTED.
2. FINISH AS PER APPROVED SAMPLE.

Rev.	Date	Description.	By
01	24-06-25	ISSUED FOR APPROVAL	MRK
00	25-02-25	ISSUED FOR APPROVAL	TMT

CLIENT

ABANOS

CONSULTANT

.

MAIN CONTRACTOR

.

PROJECT

CERTIFICATION/TEST REPORT

SUB- CONTRACTOR

ABANOS
INTERIOR FIT-OUT & JOINERY

P.O. BOX 115480, DUBAI, TEL:+971 4 8996111, FAX : +971 4 8859966
E-mail: mail@abanos.ae, Web: www.abanos.ae

DRAWING TITLE

TYPICAL DOOR DETAIL
TYPE-D10B & D12B
(90 Min. FIRE RATED DOOR)

DRAWN BY	CHK.	APPD.	DATE
TMT	.	.	25.02.2025

SCALE	DRAWING NO.	REV.
1:15 @ A3	ABS00094-STD-FR-90-PSB-146	01

دانوب لمواد البناء ش. م. ح.
DANUBE
BUILDING MATERIALS FZCO

SPECIFICATION OF AFRICAN MAHOGANY WOOD

MAHOGANY, AFRICAN (H) (1) *Khaya ivorensis*, A. Chév., W. Africa
(2) *K. anthotheca*, Welw. C.DC., W. and E. Africa
(3) *K. nyasica*, Stapf. ex Baker.f., E. Africa
Family: *Meliaceae*

Other names: (1) Nigerian, Benin, Lagos or Degema mahogany; (1) and (2) Ghana, Ivory Coast, Takoradi or Grand Bassam mahogany; (2) krala (Ivory Coast), mangona (Cameroon), munyama (Uganda); mbaua (Mozambique), mbawa (Malawi), mkangazi (Tanzania).
Distribution: Tropical West, Central and East Africa.
General description: Heartwood varies from light to deep reddish-brown. Grain straight to interlocked, moderately coarse textured to medium. Logs may have brittleheart or softheart and cross fractures or heartbreaks. Weight 540–590 kg/m^3 (34–36 lb/ft^3); s.g. .54 to .59.
Mechanical properties: *K. anthotheca* has moderately good wood bending properties, the other types cannot be bent without severe buckling or fibre rupture. The bending strength is low, stiffness and resistance to shock loads is very low and the crushing strength is medium.
Seasoning: Dries rapidly with little degrade except where tension wood occurs, causing serious distortion. Small movement in service.
Working properties: There is a moderate blunting effect on tools, and tension wood or brittleheart and interlocked grain can cause woolliness. To avoid tearing the grain a reduced cutting angle of from 15° to 20° is desirable. Nailing, screwing and gluing properties are good and it may be stained and polished to an excellent finish.
Durability: Liable to insect attack. The heartwood is moderately durable but extremely resistant to preservative treatment and the sapwood is moderately resistant.
Uses: Widely used for furniture and cabinetmaking, office, shop and bank fitting, interior joinery, boatbuilding and vehicle bodies. It is extensively used for laminations especially in cold moulded processes. Rotary cut logs are used for plywood and sliced veneers for decorative work.
Note: Related spp. include *K. grandifoliola*, C.DC., and *K. senegalensis*, (Desr) A. Juss, both sold as **heavy African mahogany** and sometimes mixed with shipments of lighter species.

TOLLFREE IN THE UAE - 800 DANUBE
ص.ب: ١٨٠٢٢، جبل علي – ا.ع.م. تليفون: ٠٤-٨٨٧١٢٣٤ , فاكس: ٠٤-٨٨٧١٢٣٥
P.O. Box-18022, Jebel Ali-U.A.E. Tel.: 04-8871234, Fax : 04-8871235 E-mail : info@aldanube.com www.aldanube.com
FORMED PURSUANT TO LAW NO.2 OF 1986 AND IMPLEMENTING REGULATION NO. 1 OF 1999 WITH LIMITED LIABILITY

TECHNICAL DATA SHEET

32 mm Fire Rated PSB® Door Core

DESIGN AWARD 2025

PHYSICAL PROPERTIES	TEST	UNIT	RESULTS
Length		mm	2440
Width		mm	1220
Thickness		mm	32

TOLERANCE OF NOMINAL DIMENSIONS	TEST	UNIT	RESULTS
Length & Width	BS EN 324-1	mm	+/- 3
Thickness – Sanded Boards	BS EN 324-1	mm	+/- 0.3
Thickness – Un-Sanded Boards	BS EN 324-1	mm	+/- 0.8
Edge Straightness Tolerance	BS EN 324-2	mm/m	1.5
Squareness Tolerance	BS EN 324-2	mm/m	2

MECHANICAL PROPERTIES	TEST	UNIT	RESULTS
Thickness Swelling - 24 H	BS EN 317	%	≤20
Moisture Content	BS EN 322	%	2-12%
Density	BS EN 323	kg/m³	800
Formaldehyde Concentration	ASTM D5582-22	mg/L	(E0) <0.3
Bending Strength	BS EN 310	N/mm²	14
Modulus Of Elasticity In Bending	BS EN 310	N/mm²	2500
Internal Bond	BS EN 319	N/mm²	0.26
Screws Withdrawal - Face	BS EN 320	N	1100
Screws Withdrawal - Edge	BS EN 320	N	1300
Reaction To Fire	ASTM E84-22		CLASS B
Sound Transmission Test (Operable)	ASTM E90-09	dB	35

DesertBoard.

MADE IN THE UAE

PIDILITE INDUSTRIES LIMITED

Marketing Division: P.B. No. 17411, Andheri (East), Mumbai 400 059 (India)

TECHNICAL DATA SHEET

Fevicol SWR

FOR INFORMATION ONLY

Fevicol SWR is a premium quality synthetic resin based self cross-linking adhesive conforming to DIN EN 204/ D3 class water resistance.

It is a technologically superior product in its class suitable for all types of wood work and provides excellent bonding on all types of hard wood and soft wood.

Product technical's

• Appearance	Milky white emulsion
• Viscosity at 30 °C	100-150 Poise
• (By B.F. RVT Spl.-4, RPM – 20.)	
• pH	3 to 6
• Density at 30degc:	1.07-1.10 gm/ml
• Flow	Continuous

Technical Details:

For wood bonding

Clamp time - 2-3hrs (varies depending upon wood moisture, temperature, and humidity in air)

Final bonding time- 24hrs

For Laminate pasting:

- Pressure: 100-150 bar
- Temperature: 50-60 ^{0}C
- Time:- 10-20 min

ADVANTAGES

- Clear glue line which can be sanded easily
- Cross linkable PVAc adhesive
- Water resistance conforms to DIN EN 204/D3
- Contains no asbestos, lead, mercury or mercury compounds.

- Complies with VOC requirement of LEED EQ 4.1
- Contains no Urea formaldehyde

Area of usage:

- Recommended as adhesive for bonding wood and wooden articles of all types and provides excellent bonding on all types of hard wood and soft wood. Because of its very high resin content and special formulation, it offers much better durability to furniture & handicrafts being used in high humidity areas.
- Fevicol SWR is also recommended for finger jointing, parquet flooring applications.
- Fevicol SWR is suitable for post forming, and hot press application
- Best suitable for FR doors (30 and 60 min)for facing and lipping)

APPLICATION METHOD

General application:

- Clean both the surface to be bonded
- Surface to be bonded should be dry, clean, and free from oil or grease.
- Stir the adhesive properly before use. Do not dilute.
- Apply thing coat of adhesive on both the surface
- Press the surface together for at least 2-3 hrs.
- To get best result press the substrates for 24 hrs.

For Hot press bonding:

- Dilute the glue with 10-15% water for roller application
- Apply uniformly and cover the edges with equal deposition.
- Depending upon the thickness of bonding substrates, set the hot press temperature
- Plate pressure between 100- 150 Bar
- Press time to be adjusted with the thickness of the material from 10-20 minutes

PRECAUTIONS

- When not in use, the container should be kept closed. Skin formation if any, should be removed from the surface before use.
- Apply between 5 ^{0}C and 40 ^{0}C. Protect from freezing until dry.
- Always test the substrates for acceptable adhesion before using.

COVERAGE (Subject to type of surface)

Approx. 5.0 – 6.0 m^2/Kg at the rate of 150 g/m^2

SHELF LIFE

24 months from the date of manufacturing.

STORAGE

Store under dry condition. Keep the tin away from heat and direct sunlight. Close the lid tightly after taking out the material from container.

HANDLING

Wear suitable protective clothing, rubber gloves and eye protective while handling. Keep out of reach of children.

CLEAN-UP

Use clean fresh water for cleaning brushes and equipment before the product dries. Dry product may be removed with hot water.

NOTE

We recommend that before using our product, the customer should make his own tests to determine the suitability of the product for his own purpose under his operating conditions. As the circumstances under which our product is stored, handled and used, are beyond our control, we cannot assume any responsibility for their use by the customer.

KLEIBERIT®
KLEBSTOFFE • ADHESIVES

PUR-Adhesive 501

One component, polyurethane adhesive for very strong bonds with high temperature resistance. With certified bond quality D4 according to DIN/EN 204, Window Institute ift Rosenheim Germany (PZ-No. 505 26095, 08.10.2002).

501.0
0736

Bonding in Shipbuilding
(according to IMO FTPC Part 5 & Part 2/ Approval per SeeBG test certificate for international use according to Module B)

Adhesive for water resistant bonding according to **DIN/EN 204**
D4

The handy bottle with the patented dispensing lid.

- self cleaning
- easy to dispense
- precise adhesive application

KLEIBERIT
KLEBSTOFFE • ADHESIVES

KLEIBERIT 501 PUR is a moisture curing single component adhesive based on polyurethane. For strong bonds with very high strength values. High temperature resistance according to DIN EN 14257 (WATT 91) and D4 water resistance according to DIN EN 204. Flame resistant adhesive according to IMO Resolution.

FIELDS OF APPLICATION

Bonding windows and doors, stairs, plywood to be used inside or outside (outside use with surface protection). Bonding mineral building boards, ceramic materials, concrete materials and hard foams.

Please see warnings on the bottle before using!

PREPARATION

The surfaces to be bonded must be climatised, clean, dry and free from dust and grease. It could be necessary to remove release agent.

APPLICATION

- Single-sided application using a spatula or hand roller to the surface which is least porous
- Assemble the two pieces to be bonded
- The product cures to a water-resistant, solvent-resistant and semi-rigid adhesive film when subjected to the influence of humidity (air, material). The cross-linking process can be accelerated by means of a targeted moisture supply (fine water spray, approximately 20 g/m²), or by higher temperatures (40°C up to max. 60°C).
- The cross-linking process should take place with a pressure that guarantees sufficient contact of the glued surfaces. In order to protect exposed surfaces from being contaminated with glue, apply e.g. a silicone paper to this area.
- The necessary pressure is dependent upon the type and size of materials. A good closed joint should be achieved. Minimum pressure for bonding laminated wood: **0.6 N/mm²**. The more intensive the cross linking of the adhesive under pressure, the higher the subsequent load ability.

PROPERTIES OF THE ADHESIVE

• **Base**	polyurethane
• **Specific gravity (20°C)**	approx. 1.13 g/cm³
• **Consistency**	medium viscosity
• **Temperature**	+20°C ideal, not below +5°C
• **Wood Moisture**	8-10 % ideal for interior 10-14 % for exterior
• **Coat weight**	100-200 g/m² Depending on the condition of the material
• **Open time**	see table
• **Press time**	see table
• **Curing time**	see table
• **Final strength**	after approx. 24 hours with sufficient moisture
• **Colour**	yellowish-brown

CLEANING

- Immediately clean spilled glue with a towel and **KLEIBERIT Cleaner 820 toluene-free**.
- Clean application tools with **KLEIBERIT Cleaner 820 toluene-free** immediately after use.
  Hardened adhesive must be mechanically removed.

ADHESIVE AND PACKAGING DISPOSAL

Disposal code 080501

PACKAGING

cartons containing 12 plastic bottles, 0.5 kg each
metal canister 6,0 kg net
metal can 32,0 kg net
metal drum 220,0 kg net

STORAGE

KLEIBERIT PUR Adhesive 501 can be stored in original factory sealed containers at 20°C for approx. 9 months. Keep in cool and dry place and protect from humidity. Opened containers should be used as soon as possible. Product is not frost sensitive.

EX 0211; replaces previous versions

Identification:

identification required according to the German hazardous substances regulations GefStoffV, contains 4.4 diphenylmethane diisocyanate.
See our safety data sheet 501
For professional use only.

TECHNICAL DATA

PUR-ADHESIVE 501

SERVICE

Our application department may be consulted at any time without obligation. The statements herein are based on our experience gained to date. They are to be considered as information without obligation. Please test and establish for yourself the suitability of our products for your particular purposes. No liability exceeding the value of our product can be derived from the foregoing statements. This also applies to the technical consultancy service, which is rendered free of charge and without obligation.

Product Overview 501

KLEIBERIT Products	Viscosity mPa·s	Open time (20 °C)	Press time (20 °C)	40 °C	60 °C	Curing time
KLEIBERIT 501.0	8000	20-25 min	60 min	30 min	10 min	2-3 hours
KLEIBERIT 501.6	7000	65-70 min	6-7 hours	2-3 hours	1-2 hours	1 day
KLEIBERIT 501.8	8000	approx. 8-10 min	30 min	15 min	7 min	1 hour

RITVER PAINTS & COATINGS where paints come to life

WOOD FINISHES DATA SHEET

WOOD GLUE Product No. PW1612

A water based wood glue based on polyvinyl acetate polymer, designed with excellent high tack and bond strength ,developed for various wood carpentry application uses , such as :[bonding timber, MDF, doors, windows in high speed assembly lines at joineries]
Product is not suitable for perpetual wet areas like toilets, kitchen sink etc.,
Virtues: It is a nontoxic and non-flammable water based, environmental friendly single component product.

USE

Product is also useful for decorative bonding, cold and hot pressing of decorative laminates, wood veneers to ply, block boards, tiles in dry condition. Etc.

SPECIFICATIONS

Properties

Color	: milky white
Specific gravity	: 1.01 Kg/lit [± 0.025]
Viscosity 4/25°C	: 180 sec. [± 1]
Weight Solids	: 43% Kg/Kg [± 1]
PH	: 5-7
Drying Interval	
Open Tack	: 5-10 min.
Curing	: 60 hrs. [Temperature, humidity, air movement, film thickness and number of coats all affect the drying time.]

SURFACE PREPARATION

All timber species must be fully aged with a moisture content of less than 15%. Surface must be dry, clean and free from contaminations. Natural oil or gum must be removed by solvent cleaning.
Exclusions for successful application include perpetually wet surfaces and also large cavities on wood surfaces.

APPLICATION METHODS

RITVER Wood glue is generally recommended to be applied without any thinning and as such. During application use a mechanical glue spreader or a convenient spatula. Ensure that the surface is free from dust and oil moieties. Spread the adhesive evenly and leave it for 5 to 10 minutes as per the wood surfaces. Press the surface to be bonded and squeeze out the excess. Remove the non-dried portion with warm water or resort to mechanical removal when dry.
Do not apply when wet as there will be no bondage to the substrate.
Once used keep the container closed immediately. It is also important to see that the tools used for application is cleaned before the glue dries off.

WOOD GLUE Product No. PW1612

PRODUCT PREPARATION

Stir well before use. Thin to the required viscosity ensuring the product is homogeneous.

Dilution

By brush, roller
Normally ready to use but we can dilute the product up to 15 % by water.

SUBSEQUENT TREATMENT

After drying this product, it does not need any subsequent treatment.

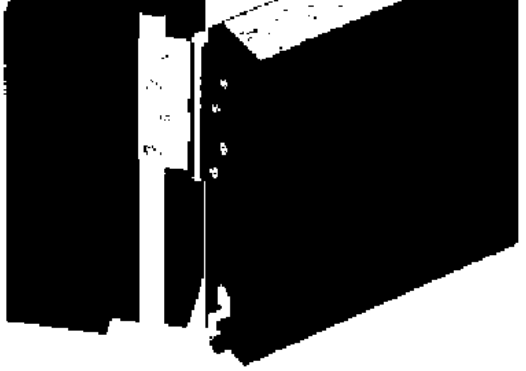
PACKING & STORING

Available in 1Lit, 4Lit ,20Lit and 200Lit .
Store in a cool and well ventilated place. Keep away from direct sunlight. Minimum one year in unopened container, stored in a cool and dry condition at 25°C.

SAFETY & FLAMMABLE

Do not expose product to direct sun light.

In case of contact with eyes rinse immediately with plenty of sweet water and seek medical
Keep away from sources of ignition. Keep out of reach of children.



FP Series

/ plain, rigid box graphite fire seal

/ provides fire protection for doors

/ equipped with a durable self-adhesive backing tape

/ supplied in lengths

TECHNICAL DATA

Application	fire rated timber doors & frames
Material	PVC encapsulated graphite

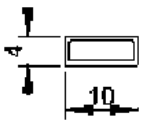
PERFORMANCE & CERTIFICATES

Fire	EN 1634-1*

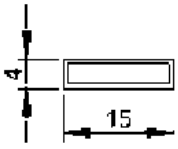
DIMENSIONS

Standard lengths	2400, 2400, 3000 mm

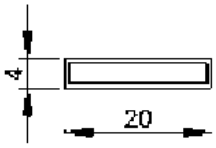
FP 1004



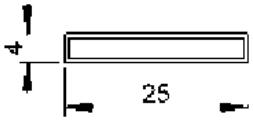
FP 1504



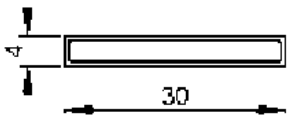
FP 2004



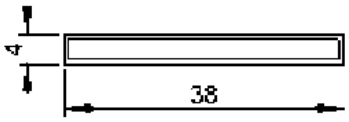
FP 2504



FP 3004

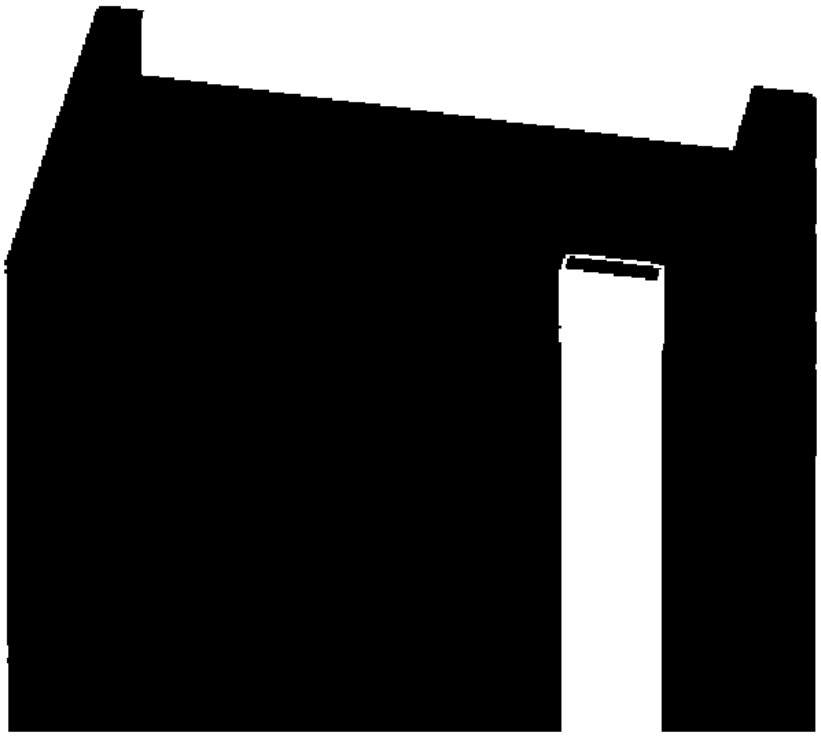


FP 3804

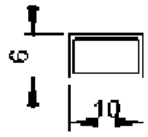


COLORS/ART.NO.	FP 1004	FP 1504	FP 2004	FP 2504	FP 3004	FP 3804
Red	F160052	F160055	F160058	F160150	F160061	F160064
Black	F160105	F160106	F160107	F160153	F160109	F160108
Brown	F160053	F160056	F160059	F160151	F160062	F160065
White	F160054	F160057	F160060	F160152	F160063	F160066

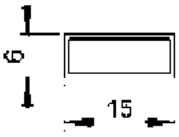
*The test value may differ according to the EN 1634-1 test, as the complete door system must be checked



FP 1006

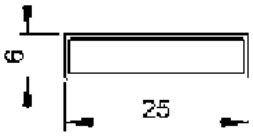


FP 1506

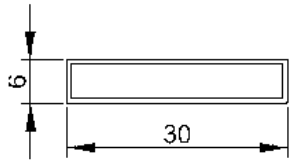


FP 2006

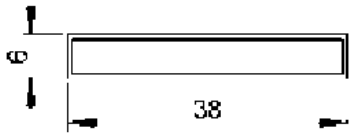
FP 2506



FP 3006



FP 3806



COLORS/ART.NO.	FP 1006	FP 1506	FP 2006	FP 2506	FP 3006	FP 3806
Black	F160197	F160201	F160205	F160199	F160203	F160207
Brown	F160124	F160125	F160126	F160127	F160128	F160129
While	F160196	F160200	F160204	F160198	F160202	F160206

athmer

Athmer oHG | Sophienhammer | 59757 Arnsberg | Germany

E sx p ,McEaNPel ,Ttyp ,,

,

Ul p tl w,Gzx z t tzy :,

E sx p ,Py x p npy ,x l p tl w,nzy t ,zq l ,s o l po,r l st p,nzx z yo-, ptyqz npo, t s,str s, p qz x l ynp, zwx p , t s,l ,agG,z p ,nl p,l yo, zyr ,l osp t p,l p, ml nv0

Gzwz :,,

E l tw mwp,ty,yl l w,r p ,/,M l st p,nzwz , t s, pwq,l osp t p,l p,ml nv,

dt p:,

P,t ,l l tw mwp,ty,pt sp ,3x x ,z ,5x x , stnvyp Qesp,x l p tl w,t , tr to-,l yo,l w,t px , l p, st po,qw -,yz , zwpo,z ,nztwpo0

epx p l p,l z p:,

P, tw,wpx l ty, l mwp,z p ,l , top, px p l p,l yr p, t s,x wt,ot pn tzyl w,p l y tzy, spy, mqpn po, z,str s, px p l p 0

m ut

RaTRT m 8t
bm u mEGDR
m 9 :bpr EGHVVGaLa
bHDHRVDSDEDD

athmer
Athmer oHG | Sophienhammer | 59757 Arnsberg | Germany

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Gzwo:,,

l z p, z,p px p,nzwo, twyz ,op tx py l ww,l qppn , sp,x l p tl w,p np , sl ,t, tw mpnzx p,x z p,mt wpQ

,

Gspx tnl w,l z p:,

esp,nzl tyr ,zy, sp,x l p tl w,t , p t l y , z,l ww,m , sp,x z ,l r r p t p,zq,nspx tnl wQ P,t , yl qppn po,m ,nzx x zy,l nto -,l w l w -, l w ,l yo,z r l ytn, zwpy Q,h sp p, sp, nzl tyr ,sl ,mppy,ol x l r po,z ,n , s z r s-,nl p,x ,mp, l vpy, z, pty l p, sp, ol x l r po,l pl Q,

,

l l y tzy,Gsl l n p t tn :,,

a zo n ,nzy l tytyr ,Py x p npy ,x l p tl w, twyp l yo,l ,l , l tp ,zq, l p ,l yo, px p l p -,op pyotyr ,zy, spt ,nspx tnl w,nzx z t tzy,l yo,z sp ,d l n z Q l y t zyx py l w,nzyot tzy -, sp, w npx py ,zq, sp, zo n ,l yo, sp,pyp r ,zq, sp,spl , z np,x l ,tyqwpynp, sp, ppo,z ,x l r yt op,zq, sp,Py x p npy , pl n tzyQesp, qz ww tyr ,tyqz x l tzy, p p ,l ,l ,r topwtypQ

,

epx p l p,qz ,l l y tzy:,

E z tx l pw,331 ,opr pp ,G-,op pyotyr ,zy,nzyot tzy ,

,

cl p,zq,l l y tzy:,

f , z,31 , tx p -,ml po,zy,z tr tyl w,stnvyp ,zq,pt sp ,3x x ,z ,5x x -,l yo,op pyotyr , zy,nzyot tzy ,

,

Uzt p,cp t l ynp:,,

a z topo, sp, z pn t p,nl tyr ,t ,ty l n -,p stmt ,r zzo, p t l ynp, z,s x tot ,m , tw p t p,x z p, pntl w po, pl x py ,tq,nzy ty z w,p z po, z,nzyopy l tzy,z , yytyr , l p Q,

,

d pntl w,Nl yow tyr ,cp t px py :,

dpl w, sz wo,mp, z po,qw -, pqp l mw,ty,l ,nzzw w np-,m , tw zwp l p, px p l p , , z,56,opr pp ,GQl py t p, p , sz , sl ,yz,op p tz l tzy,ty, p qz x l ynp, l vp , w np,p py,l q p ,21 , pl ,zq, z l r pQ

m ut

RaTRT m 8t
bm u mEGDR
m 9 :bpr EGHVVGaLa
bHDHRVDSDEDD

,

Lpl p :,

- ✓ Tz ,esp x l w,Gzyo n t t ,
- ✓ l npwqpy ,Ltp, pl wtyr , z p tp ,
- ✓ l npwqpy ,Eosp tzy, z,Uz ,x l p tl w,
- ✓ l npwqpy ,Py wl z ,
- ✓ d l mvp,l ,Ntr s,epx p l p ,

,

E wnl tzy :,

- Ltp,cp t l y ,. ,cqz ,Ltp,Hzz ,l or p,dpl wtyr -,
- Ttyp ,/,Fpootyr,Ul p tl w,,cqz ,Ltp,cp t l y ,Mw tyr,d px 0,
- Ltp,cp t l y ,. ,cqz ,Py x p npy ,Tz p ,/,Hl x p ,

,

Ltp, p ,l topynp:,

gl tz ,nzx mtyl tzy ,zq, pl w,sl p,mppy, p po,zy,ozz ,l px mvtp , , z,231,x ty , ty,l nnz ol ynp, z,,FdI V,2A45. 20,awpl p,nzy l n ,z , pnsytnl w,op l x py ,cqz , p topynp,nz tp 0,

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VF:,esp, p ,x ,mp, l t qtpo, sl , sp, zo n ,t ,py t pw, tl mvp,cqz , sp,ty pyopo, p0

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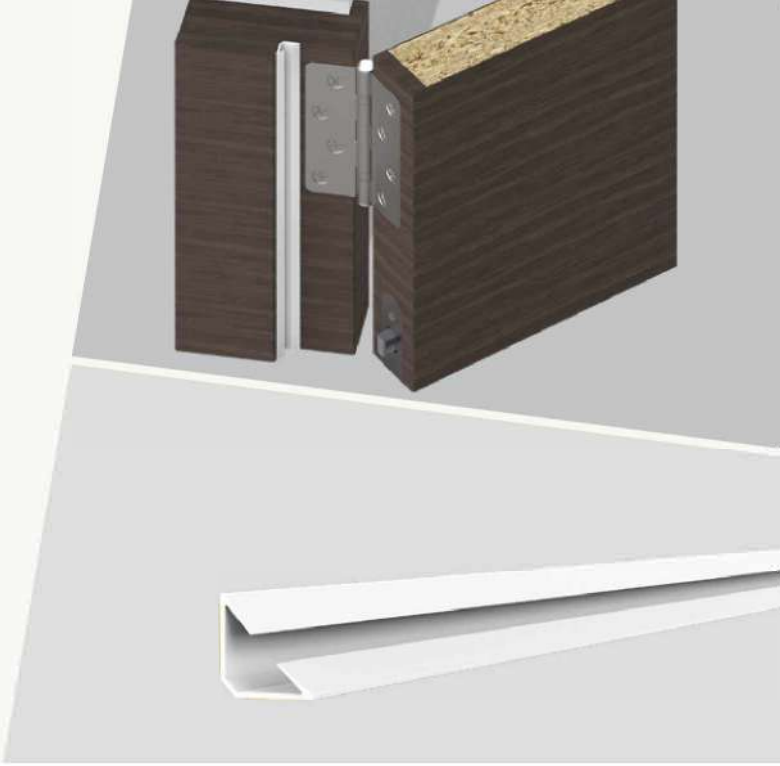
m ut

RaTRT m 8t
bm u mEGDR
m 9 :bpr EGHVVGaLa
bHDHRVDSDEDD

PS 1010 P Flex
PS 1212 P Flex
PS 1515 P Flex

- winged corner seal with flexible base
- equipped with two rows of durable self-adhesive backing tape
- flexible base offers more flexibilty during installation
- ensures soft closing of the door
- also suitable for retro-fit applications



TECHNICAL DATA

Application	timber and metal door frames
Gasket material	rigid and flexible PVC co-extrusion
Working temperature range	-15°C to +60°C

DIMENSIONS

Standard lengths	2100, 2200, 2400, 2500, 3000 mm

FIXING

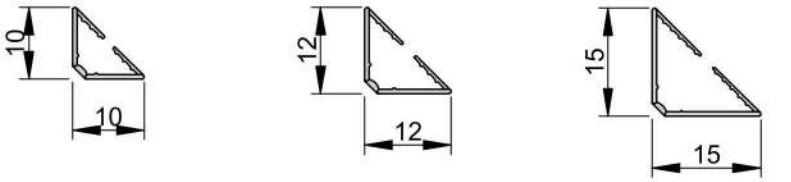
Fixing	stuck to the door stop with self-adhesive backing tape

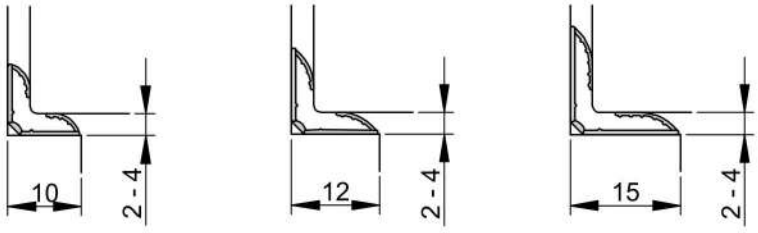
PERFORMANCE & CERTIFICATES

UL	UL 10C (R38166)

COLORS/ART.NO.	PS 1010 P Flex	PS 1212 P Flex	PS 1515 P Flex
Black	P160130	P160136	P160138
Dark brown	P160132	P160137	P160139
White	P160131	P160135	P160140
Grey	P160159	P160147	P160151

	PS 1010 P Flex	PS 1212 P Flex	PS 1515 P Flex
Fitting tolerance range	2 - 4 mm	2 - 4 mm	2 - 4 mm
Width x height	10 x 10 mm	12 x 12 mm	15 x 15 mm





Product Data Sheet

ASMACO GOLD UNIVERSAL MULTIFOAM (B1) (FIRE RETARDANT)

ASMACO GOLD UNIVERSAL MULTIFOAM (B1) (FIRE RETARDANT)

Product Description:

ASMACO GOLD UNIVERSAL MULTI FOAM B1 is quick setting single component polyurethane foam with fire retardant properties. It meets the extremely stringent requirements of DIN 4102 Part 1 for Construction Materials; Class B1 where fire ratings up to 240 minutes are achievable. Once cured, the foam can be cut, sawn or plastered over after only one hour providing the working temperatures (can and surfaces) are between +5 to +30oC, ideally 20oC. (Tested according to BS 476 part 22)

Key Performance Properties:

- High degree of fire rating: slows down the passage of flames and smoke.
- Quick setting - can be cut, sawn or plastered in 1 hour.
- Economical in use – 300% Triple Expanding foam.
- Fills irregular and broad gaps where most conventional fillers would fail.
- Possesses insulating and sound deadening properties.
- Nonflammable propellant.
- Excellent adhesion & filling capacity and high thermal & acoustical insulation valve.
- Excellent mounting capacity and stability.
- Adheres to almost all building materials with the exception of surfaces such as polyethylene, Teflon, silicone and surface contaminated with oils and greases, mold release agents and similar materials.
- Mould proof, water proof, over paintable.
- Quick drying, moisture curing.
- Closed cell structure, resistant to water absorption.
- Cured foam dries rigid and can be trimmed, shaped and sanded.
- Suitable for sealing high volume low moment gaps.
- It does not contain any propellant gases that are harmful to the ozone layer.

Applications:

- Fixing and insulation of door and window frames.
- Filling and sealing gaps, joints and cavities.
- Filling of penetrations in walls.
- Insulating electrical outlets and water pipes.

Typical Properties:

Curing system	--	Moisture cure
Tack Free time	Minutes	15 Max.
Cutting Time	Minutes	40-50
Complete curing	Hours	24
Foam color	--	Pink

Product Data Sheet

Density	Kg/m3	15 -22
Adhesion Strength	kPa	PVC to PVC 143,Alumimum plates 133
Elongation at break	%	8-20
Shear Strength	kPa	22-50
Compression strength	kPa	35-100 at 10% compression
Water absorption	%	Max. 0.03 volume
Thermal conductivity	35°C W/(m.K)	<0.035
Foam Yield	Liters	35-50
Building Material Class	--	B1 DIN 4102 part 1
Fire Rating	--	Up to 240 min.
Can temperature	°C	Min.-5, Max.+35
Application temperature	°C	+5 to +35
Temperature Resistance	°C	-40 to +90 when cured

Instructions:

Optimal can temperature is +20 °C. Application (ambient) temperature is between +5 °C to +30 °C. Shake the can well before use. Screw the tube on the valve. Moisturizing the surfaces and the foam improves adhesion and shortens curing time. Hold the can upside down and activate the foam by pressing the valve. When spray please pay attention to the speed. Fill vertical joints from the bottom up when half- filled enough. When fill gaps in ceiling, uncured foam may drop because of gravity, Fresh foam can be cleaned by acetone immediately. Please support properly after filling until foam cure and adhere to the gap. Foam is tack free after about 10 minutes, can be cut after 60 minutes. Use a knife to smooth the cured foam and treated surface with cement, paint or silicone.

Restrictions:

- Storage above +30 °C and below -5 °C shortens shelf life.
- Should be stored and transported in vertical position.
- Should be kept in room temperature for at least 12 hours before the application.
- Cured foam will discolor if exposed to ultraviolet light.
- Paint or coat the cured foam for best results in outdoor applications.

Storage and Shelf Life:

12 months when stored at 20°C / 50% relative humidity out of direct sunlight.

Packaging:

ASMACO GOLD UNIVERSAL MULTIFOAM B1 (Straw Type & Gun Type) 750 ML - 12 CANS/CTN

Safety:

Contains Diphenylmethane-4,4'-Diisocyanate. Harmful by inhalation. Irritating to eyes, respiratory system and skin. Do not breathe spray/Vapour. Wear suitable protective clothing and gloves. Use only in well-ventilated areas. Pressurized container. Keep away from direct sunlight and do not expose temperatures over 50 °C. Do not pierce or burn, even after use. Keep away from sources of ignition, no smoking. Keep out of the reach of child.

Product Data Sheet

Shipping Limitations: None

Note

The information and data contained in the product data sheet is believed to be accurate and reliable; however, it is the user's responsibility to determine suitability of the product for usage. Since the supplier cannot know all the uses, or the conditions of use to which the product may be exposed, no warranties concerning the fitness or suitability for particular use or purpose are made. It is the user's responsibility to thoroughly test any proposed use of our products and independently conclude satisfactory performance in the application Likewise if the application, product specifications or manner in which our products are used require government approval or clearance, it is the sole responsibility of the user to obtain sure authorization.

Non – Warranty: Because the storage, handling and application of the material is beyond Anchor Allied Factory Ltd's control, we can accept no liability for the result obtained. Anchor Allied Factory Ltd's sole limited warranty is the product meets the manufacturing specifications in effect at the time of shipment. There is no warranty or merchantability or fitness for use, nor any expressed or implied warranty. Anchor Allied Factory Ltd will not be liable for any incidental and consequential damage of any kind. The exclusive remedy for breach of such limited warranty is a replacement of any product shown to be other than warranted. Suggestions of uses should not be taken as inducement to infringe any patents.

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P.O. Box No.: 21152, Sharjah (U.A.E.), E-mail : info@anchorallied.com.

SILICONE SEALANTS • WATERPROOFING COATINGS • PU SEALANTS • POLYSULPHIDE SEALANTS • ACRYLIC & DUCT SEALANTS
POLYURETHANE FOAM • SPRAY PAINT • SILVER CLOTH DUCT TAPE • CREPE PAPER MASKING TAPE • ALUMINIUM FOIL TAPE
P.E. PROTECTION TAPE • PVC PIPE WRAP TAPE • CONTACT ADHESIVE • EPOXY STEEL • PVC CEMENTS • SUPER GLUE

FCC - 9000
FLAME CORE COAT

TECHNICAL DATA SHEET

DESCRIPTION

FCC-9000 is an advanced, high-performance water-based intumescent coating designed to enhance the fire resistance of wooden doors and substrates, as well as improve the flame resistance of non-fire-rated wood surfaces. Applied directly as a base coat, FCC-9000 expands when exposed to high temperatures, forming a protective charred layer that insulates the wood. It adheres directly to wood substrates, creating a robust fire-resistant barrier. After drying, it allows for subsequent treatments such as veneering, laminating, and painting. The product is easy to apply using standard tools and is suitable for interior use. Ensure the wood surface is clean and dry before application, and follow safety guidelines including adequate ventilation and protective gear.

APPLICATIONS

- Fire Doors
- Wooden Surfaces
  - Wooden Paneling and Trim
  - Wooden Furniture
  - Wooden Ceilings and Beams
  - Wooden Partitions and Dividers
- Wooden Surfaces
  - Residential Buildings
  - Healthcare Facilities
  - Public Buildings
  - Commercial Buildings
  - Hospitality Sector
  - Industrial Facilities

PRODUCT CHARACTERISTICS

- Water-borne and environmentally friendly
- Very low odor, non-toxic, hypoallergenic, and non-carcinogenic
- Reduces fire spread and smoke by up to 90%
- Coverage: 27.9 Sq.m per Gallon as Class A
- Passed strict EPA – V.O.C. and AQMD standards
- Low cost and high efficiency
- Can be applied by spray, roll, or brush
- Compatible with any paintable surface
- Fast drying with excellent durability and rapid recoating properties
- It can be further treated with veneering, laminating, and painting directly on the surface

PACKAGING

Available in White colour.

Packaging	Qty. Per Case	Weight (KG)
1 Gallon Pail	1	5
5 Gallon Pail	1	25

FCC - 9000
FLAME CORE COAT

TECHNICAL DATA SHEET

USAGE METHOD

Applying FCC-9000 coating can be achieved with either a brush or spray technique, based on the project's specific needs and environmental conditions.

INSTALLATION GUIDE

STEP 1 TThe substrate must be sound, clean, and free from voids, bug holes, gaping cracks, honey combs, or ridges and open pored (like medium grit sand paper).
Remove bond breakers, such as oil, grease, dirt, loose particles, remains of form oils, water repellents, rust or other coatings

STEP 2 Mixing FCC-9000 coating thoroughly by a power agitator before application. Thinner is normally not required. If necessary, use potable water (3% max.) to adjust viscosity. Water is also for tools and spray machine cleaning

STEP 3 The FCC-9000 coating can be applied using a brush, roller, or spray system, providing versatility in application methods. A brush allows for precise application on detailed or intricate areas, a roller ensures even coverage over larger, flat surfaces, and a spray system delivers a smooth, uniform finish with minimal effort, ideal for extensive or complex surfaces

STEP 4 Do not allow the coating material to remain in hoses, gun or spray equipment. Clean all equipment with water immediately in work stoppages or after use.

STEP 5 All unused coating should be stored in tightly closed container. Surface skinning may show in a partially filled container. Filter the material prior touse.

STEP 6 Thickness measurement – thickness of painted layer can be checked by wet film thickness gauge. The DFT can be checked by caliper for fully cured.

TESTING DATA

Contact **MVL Firestop** for suitable system recommendation.

Material properties:	
Asbestos Fillers	None
Solvents	None
Hazardous Ingredients	None
Application	Brush, Roller, Spraying Machine
Application Temperature	5˚C - 40˚C (40˚F - 104˚F)
In-service Temperature	-25˚C - 80˚C (-13˚F - 176˚F)
Shelf life	18 Months

Physical properties:	
Expansion begins	375˚F (190˚C)
Expansion greatest	750˚F -840˚F (400˚C - 450˚C)
Expansion	80 Times
VOC	56 g/L
Drying Time	Dry to touch after 3~4hours,10 days
Density	1.2 ~1.4 g/cm3
Intumescent	Yes
PH value	7±1.0
Paintable	Yes
Viscosity	15000~25000cps (25 ˚C),adjustable
Used Solvent	Water
Typical thickness	WFT 1mm & DFT 0.63mm

Performance	
HOAC tested	50+ years

FCC - 9000
FLAME CORE COAT

TECHNICAL DATA SHEET

INSPECTION & REPAIR

Thickness measurement – thickness of painted layer can be checked by wet film thickness gauge.The DFT can be checked by caliper. Whenever destructive sampling needed during inspection, all damaged area must be reinstalled immediately using same product at the recommended thicknesses according to the approved listing, destructive tests must take place after full cure of material.

STORAGE & SHELF-LIFE

FCC-9000 shall be stored in normal conditions away from direct sun light for long periods. Shelf-life is 18 months if stored properly in well-closed containers. Should be stored between 50˚F (10˚C) and 86˚ F (30˚C) to obtain 18 months shelf life.

LIMITATIONS

Installer is responsible for proper product application. Site visits by MVL Firestop personnel or representatives are solely for the purpose of making technical recommendations, not for providing supervision or quality control.

SAFETY

Refer to SDS.

FCC-9000 contains no hazardous materials. Use rubber gloves and goggles during application. Avoid contact with eyes and skin. After contact with skin, wash with plenty of water. In case of eye contact, rinse immediately with plenty of water and seek medical advice.

KEEP OUT OF REACH OF CHILDREN .

CLEAN-UP

Clean tools and equipment with water immediately after use. Cured material can only be removed mechanically.

CAUTIONS

FCC-9000 is non-toxic, non-hazardous during handling, storage and use.

- For Ecology: Do not dispose directly to water or soil. Mix with plenty amount of sand before this to comply with the local regulations.
- Splashes on skin will be washed with water and soap


Fire Protection


Smoke Seal


Paintable


Veneered


Laminated

TAINJIN LUJIO TRADING CO.,LIMITED
TEST REPORT

DATE: 2024 5TH DEC
BUYER NAME: ICONIC TOOLS TRADING LLC
P/I NO: CJ2023
TEST STANDARD: Q/ASB 610.1-2024
BRAND: MT WERKZ

PRODUCT DESCRIPTION	CONSTRUCTION	ROD DIA	ROD LENGTH		
C1022A / SWRCH22A	STEEL ROD	6.5MM	280 MTR / ROLL		
CHEMICAL ANALYSIS					
CARBON	SI	Mn	P	S	Cr
0.185	0.06	0.75	0.01	0.013	0.02
TEST DESCRIPTIONS		STANDARD	RESULT		
TEST ITEMS (T/S)	SPEC	TENSILE STRENGTH	TENSILE STRENGTH		
LOAD CAPACITY ROD	6.5MM ROD	>450	498		PASS
PULL OUT DIA LENGTH 3.5MM	#6	>120	132		PASS
PULL OUT DIA LENGTH 4.2MM	#8	>185	200		PASS
PULL OUT DIA LENGTH 4.8MM	#10	>250	270		PASS
TEST DESCRIPTIONS		STANDARD	RESULT		
TEST ITEMS (Y/S)	SPEC	YIELD STRENGTH	YIELD STRENGTH		
LOAD CAPACITY ROD	6.5MM ROD	>280	310		PASS
PULL OUT DIA LENGTH 3.5MM	#6	>65	75		PASS
PULL OUT DIA LENGTH 4.2MM	#8	>100	115		PASS
PULL OUT DIA LENGTH 4.8MM	#10	>140	159		PASS
SCREWS SIZE #6 - 1/2" 3/4" 1" 1-1/4" 1-1/2" 2" 2-1/2" 3" 4"					
SCREWS SIZE #8 - 1/2" 3/4" 1" 1-1/4" 1-1/2" 2" 2-1/2" 3" 4"					
SCREWS SIZE #10 - 1/2" 3/4" 1" 1-1/4" 1-1/2" 2" 2-1/2" 3" 4"					

钟银标

Schall-Ex® L-14/35 EK

1-935

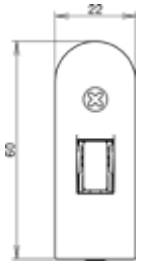
- drop seal with common groove dimension
- parallel actuation minimises friction with the floor
- tool-free actuator can be deactivated before building occupancy
- actuator requires no protective press plate for the frame
- end plates provide neat finish

TECHNICAL DATA

Application	hinged timber doors
Actuation	single
Gasket material	self-extinguishing silicone

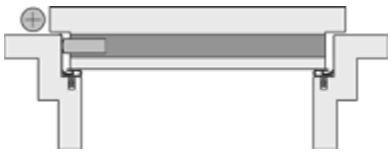
DIMENSIONS

Width x height	14 x 35 mm
Standard lengths	635, 735, 835, 935, 1035, 1135, 1235 mm
Minimum lengths*	235 mm
Maximum lengths	1635 mm
Can be shortened by	100 mm from standard lengths
Travel	20 mm



FIXING/MONTAGE

Fixing	rebated into a groove in the door, screw fixed either side
Accessories included with delivery	5519



PERFORMANCE & CERTIFICATES

Fire	EN 1634-1**, UL10B & UL10C (R38166)
Acoustic	51dB over 7mm gap, 44dB over 12mm gap
Smoke	Certifire TS21 (CF 5675)

* min. lengths cannot be shortened

**The test value may differ according to the EN 1634-1 test, as the complete door system must be checked.

Interdens® by athmer

Intumescent hardware protection kits

Interdens® is a multi-purpose intumescent material made from mono ammonium phosphate that enhances the thermal insulation and fire resistance of timber and timber-based materials. When exposed to fire Interdens® provides a pressureless expansion, growing to a multiple of its original volume and forming a highly heat-insulating foam layer. Joints, cavities and other openings are sealed, preventing or delaying the spread of flames and fumes effectively. Timber nearby to the heat-insulating foam layer will effectively be protected from the impact of fire and heat.

In relation to fire rated doors and door hardware, Interdens® can be used to protect weaknesses created during the door processing phase. Removal of core fire door material and the introduction of door hardware with a higher thermal conductivity are both factors that can lead to early fire door failure. Having been included in hundreds of fire door tests globally, Interdens® is proven to provide fire resistance performances up to 120 minutes when tested in accordance with BS 476-22 & EN 1634-1.

athmer can provide Interdens® in sheet form or as an added service, precut to suit specific ironmongery. Our in-house team can work with you to create precut shapes that align with your fire test evidence and ironmongery requirements. athmer supplies Interdens® in white and with a self-adhesive backing as standard.

Applications:
Interdens® can be used in a variety of fire door applications to protect hardware. Bespoke pre-cut kits can be used to protect butt hinges, concealed hinges, mortice locks, concealed door closers, automatic drop seals, flush bolts, door viewers, etc.
These protection kits can provide fire resistance of 30, 60, 90 or 120 minutes when tested with full size door assemblies and tested in accordance with BS 476-Part 20 & 22 and BS EN 1634-1.

athmer oHG / Sophienhammer / 59757 Arnsberg / Germany
T +49 2932 477-500 / info@athmer.com / **athmer.com**

Drop Seals

/ precut kits to suit all common auto drop seal sizes

/ std. sizes (mm): 14 x 35, 15 x 30, 20 x 30

  – other sizes available on request

/ Supplied as 1 part wrap around kit around mortise drop down seal with full self adhesive tape back.

/ thickness: 1 mm (type 15) & 2 mm (type 36)

Flush bolts

/ precut kits to suit all common flush bolts

/ std sizes (mm): to suit 200 x 19, 200 x 25, 300 x 25

  – other sizes available on request

/ special kits available for manual rod extension flush bolts as well as automatic flush bolts.

/ supplied as full wrap around kit to suit flush bolt/ door cutout with full self adhesive tape back

/ thickness: 1 mm (type 15) & 2 mm (type 36)

Locks - single & multi-point

/ precut kits to suit all types of lock bodie

/ DIN55/72, DIN60/72, DIN80/72 etc.

/ bespoke kits can be supplied for electrified locks, hotel guest room card locks, multipoint locks, budget locks etc.

/ supplied as full wrap around kit around lock body as well as under strike plate with full self adhesive tape back

/ thickness: 1 mm (Type 15) & 2 mm (Type 36)

Hinges - standard, concealed & continous

Precut kits for

- butt hinges (radius and square edges)
  - sizes (mm): 102 x 76, 102 x 89, 102 x 102, 114 x 102, 114 x 114
- concealed Hinges: Simonswerk/Tectus TE-340, TE-527,TE540 & TE-0640
- bespoke kits to suit special application hinges, continuous hinges, pivots, floor spring accessories etc available on request
- thickness: 1 mm (type 15) & 2 mm (type 36)

Concealed door closers

- precut kits for all concealed door closers models
- size 1 ~ 3, size 2 ~ 4, size 2 ~ 5 & size 3 ~ 6
- supplied as 2 or 3 part wrap around kit around door closer body as well as top channel with full self adhesive tape back
- special kits for electromagnetic hold open closers with longer track arms available on request
- thickness: 1 mm (type 15) & 2 mm (type 36)

Door viewers

- bespoke kits for all common door viewers
- precut and scored kits supplied to wrap around the barrel with full self adhesive tape back
- thickness: 1 mm (type 15) & 2 mm (type 36)

	Interdens® Type 5	Interdens® Type 15	Interdens® Type 36
Chemical basis	phosphate	phosphate	phosphate
Matrix	thermoset, glass-fibre reinforced	thermoset, glass-fibre reinforced	thermoset, glass-fibre reinforced
Consistency	semi-rigid	semi-rigid	semi-rigid
Thickness	0.6 mm	1.0 mm	2.0 mm
Colour	white	white	white
Service conditions	for interior use	for interior use	for interior use
Activation temperature	approx. 150 °C (phase 1) approx. 300 °C (phase 2)	approx. 150 °C (phase 1) approx. 300 °C (phase 2)	approx. 150 °C (phase 1) approx. 300 °C (phase 2)
Intumescence factor (400°C)	up to 50	up to 50	up to 75
Expanding pressure (300 °C)	pressureless	pressureless	pressureless

Dimensions (standard)			
Sheets/ sheetings	2.000 x 1.000 mm	2.000 x 1.000 mm	2.000 x 1.000 mm
Strips	Widths of 10, 15, 20, 25, 30 mm	Widths of 10, 15, 20, 25, 30 mm	Widths of 10, 15, 20, 25, 30 mm
Precut shapes	Hinges	Hinges, locks, door closers and all other mortised door hardware	Hinges, locks, door closers and all other mortised door hardware

athmer oHG / Sophienhammer / 59757 Arnsberg / Germany
T +49 2932 477-500 / info@athmer.com / **athmer.com**

East White Marble

General Information

ORIGIN	CHINA
BLOCK SIZES	NORMAL DIMENSIONS
COLOUR UNIFORMITY	GOOD
AVAILABILITY	GOOD
PREVAILING USE	INTERIOR & EXTERIOR
POLISHING TREATMENT	GOOD
OTHER SURFACE TREATMENT	POSSIBLE

Technical Data

EXAMPLES OF TEST RESULTS:

COMPRESSIVE STRENGTH	90 MPa
WATER ABSORPTION	0.20 %
BULK DESITY	2660 Kg. /m3
FLEXURAL STRENGTH	12 MPa
MODULUS OF RUPTURE	1O MPa

The example of test result, must be considered as merely indicative. The technical data can present some inaccuracies or incompletions. Technical details provide a frame of reference only.

mail@dar-al-rokham.com
www.daralrokham.com

For the Builders of a Better World™

LATAPOXY® 300 Adhesive

LATAPOXY 300 Adhesive is a chemical resistant, epoxy adhesive that will bond to most sound, clean surfaces. Adhesive spreads easily and cleans with water while fresh. LATAPOXY 300 Adhesive is a factory-proportioned kit consisting of epoxy resin, hardener and chemical resistant silica filler. LATAPOXY 300 Adhesive can be used in interior and exterior (see limitations) walls and floors, wet and dry areas.

FEATURES/BENEFITS

- Water cleanable.
- No flammable solvents are required to clean tools or finished work.
- Ideal for installing moisture sensitive marble and agglomerate tiles.
- Ideal for the installation of resin backed tile, mosaics, stone, and agglomerates.
- Non-staining on white and light-colored marble.
- High bond strength.
- Maximum chemical resistance.
- Conforms to ISO 13007 with a R2 Classification.

USES

For heavy duty commercial chemical resistant installations in food processing areas, commercial kitchens, restaurants, etc.

Also use LATAPOXY 300 Adhesive to install all types of ceramic tile, marble and natural stone over post-tensioned and precast floor systems.

Also recommended for rubber flooring and wood block floors and the installation of green marble, white marble and agglomerate marbles that have a tendency to stain, darken or warp when installed with water-based installation materials.

Note: The Tile Council of North America recommends the use of epoxy adhesives and grouts for thin-set installations on suspended concrete slabs and for floors and walls when chemical resistance is required.

MANUFACTURER/DISTRIBUTED BY

LATICRETE South East Asia Pte Ltd

No. 38 Sungei Kadut Street 2 (Level 2, A3) Singapore 729245

Telephone: +65 6515 3028 Fax: +65 6515 3037

Internet: se.laticrete.com

STANDARDS/CERTIFICATIONS

- ANSI A118.3, American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive
- EN12003
- EN1346

This product has been certified green by the UL GREENGUARD Certification Program.

Suitable Substrates

- Concrete
- Ceramic tile and stones
- Exterior glue plywood*
- Concrete masonry
- Brick masonry
- Non-water soluble cut-back adhesive
- Vinyl or other resilient tile*
- Cement mortar beds
- Gypsum wallboard*
- Cement plaster
- Cement terrazzo
- Plastic laminate*
- Cement backer board**
- Steel

* Interior application only.
** Consult cement backer board manufacturer for specific installation recommendations and to verify acceptability for exterior use.

Packaging

Unit consists of the following components:

- Part A: 2 x 0.5kg
- Part B: 2 x 1kg
- Part C: 2 x 4.1kg

LATAPOXY 300 Adhesive is a factory proportioned kit with resin, hardener and filler powder, packed in a plastic mixing pail together with rubber gloves, cleaning pad and instructions.

Approximate Coverage

	#1 Unit	#2 Unit
With 6 x 6 mm square notch trowel	15–18 sq. ft./1.4–1.7 m^2	30–35 sq. ft./2.8–3.3 m^2

*Resilient and wood flooring only.

Shelf Life

Factory sealed containers of this product are guaranteed to be of first quality for two (2) years*, stored at shelter area with temperatures ≥0°C to ≤40°C.
* High humidity will reduce the shelf life of bagged product.

Limitations

- Not for use as a grout. Use SpectraLOCK®† PRO Grout; LATAPOXY® SP–100 or LATAPOXY 2000 Industrial Grout.
  † United States Invention Patent No.: 6881768 (and other Patents)
- Do not install when surface temperature is below 5°C or above 40°C.
- Adhesives for ceramic tile and stone are not replacements for waterproofing membranes. When a waterproofing membrane is required, use a LATICRETE Waterproofing Membrane.
- Consult LATICRETE Technical Services on limitations for exterior installations.
- When installing ceramic tile and stone, verify that substrate deflection does not exceed the maximum allowable industry standard of L/360 for ceramic tile and L/480 for stone under combined live and dead loads. Some marbles and other stone have low flexural strength and may not be suitable for installation over wood floors.

Cautions

Consult MSDS for more safety information.

- During cold weather, protect finished work from traffic until fully cured.
- LATAPOXY 300 Adhesive Part A is corrosive until fully cured. Damage to eyes or skin is possible.
- Wait 14 days after the final grouting period before filing water features with water at 21°C.
- Contains silica sand. Silica sand may cause cancer or serious lung problems. Avoid breathing dust. Wear a respirator in dusty areas.
- Keep out of reach of children.

TECHNICAL DATA

Performance Properties

Test	Test Method	Results
Quarry Tile Shear Bond Strength	ANSI A118.3–5.5	>8.5N/mm^2
Compressive Strength	ANSI A118.3–5.6	>51N/mm^2
Tensile Strength	ANSI A118.3–5.7	>12.4N/mm^2
Thermal Shock Resistance	ANSI A118.3–5.8	>8.2N/mm^2
Shrinkage	ANSI A118.3–5.3	<0.1%
Sag Resistance	ANSI A118.3–5.4	Pass
Water Cleanability	ANSI A118.3–5.1	>80 minutes
Initial Shear Adhesion	EN12003 7.3	>24 N/mm^2
Shear Adhesion Strength after Water Immersion	EN12003 7.4	>15N/mm^2
Shear Adhesion After Thermal Shock	EN12003 7.5	>17N/mm^2
Open Time Tensile Adhesion Strength	EN1346	>3.5N/mm^2

Data from TCA054–05, TCA 095–90, and without notification. Results shown are typical performance will depend on installation methods.

Classification in Compliance with EN 12004

LATAPOXY® 300 Adhesive is CE marked, by Materialprüfungs-und Versuchsanstalt Neuwied Baustoffe GmbH (Neuwied, Germany)

Working Properties (25°C)

Pot Life	45 Minutes
Time to Grout	12 hours
Time to light traffic	12 hours
Time to Heavy Traffic	24 hours
Minimum Application Layer	1/8 (3mm)
Maximum Application Layer	3/8 (9mm)
Wet Density	1590 kg/m^3

Results shown are typical but reflect test procedures used. Actual field performance will depend on installation methods and site conditions

Chemical Resistance* Chart (25°C)

CHEMICAL RESISTANCE CHART LATAPOXY® 300 EPOXY ADHESIVE		
REAGENT TYPE	LATAPOXY 300 Modified Epoxy Adhesive EXPOSURE LEVEL	
	Continuous Exposure	Intermittent Exposure
Citric Acid 10%	R	R
Sulfuric Acid 1%	R	R
Hydrochloric Acid 1%	R	R
Lactic Acid 5%	R	R
Vinegar	NR	R
Acetic Acid 10%	NR	R
Phosphoric Acid 5%	R	R
Sodium Hydroxide 10%	R	R
Sodium Chloride 10%	R	R
Concentrated Detergents	R	R
Ammonium Hydroxide	R	R
Sugars	R	R
Gasoline	R	R
Cooking Oil	R	R
Turpentine	R	R
Mineral Spirits	R	R
Toluene	NR	NR
Xylol	NR	NR

R= Recommended NR= Not Recommended

Chemical resistance determined in accordance with ASTM C267–1982.

NOTES TO SPECIFIER: Use the constant exposure recommendations for intermittent exposure to reagents at temperatures above 32°C.

* Intermittent is less than 3 days exposure.

** Constant is 1 month exposure.

INSTALLATION

Surface Preparation

All surfaces should be between 5°C and 40°C and structurally sound, clean and free of all dirt, oil, grease, paint, concrete sealers or curing compounds. Rough or uneven concrete surfaces should be made smooth with LATICRETE Latex Portland Cement Underlayment to provide a wood float (or better) finish. Installation may be made on a damp surface. New concrete slabs must be damp cured and 28 days old prior to application. All slabs must be plumb and true to within 6mm in 3 m. Expansion joints shall be provided through the tile work from all construction or expansion joints in the substrate.

Follow ANSI specification A108.01-3.7 "Requirements for Movement Joints: Preparations by Other Trades" or TCNA detail EJ-171 "Movement Joints—Vertical & Horizontal". Do not cover expansion joints with mortar. Note: Temperature will effect working properties of LATAPOXY® 300 Epoxy Adhesive. Warm temperatures will speed curing and shorten working time. Cool temperatures will slow curing and require longer time to traffic. Store LATAPOXY 300 Adhesive at 21°C for 24 hours prior to use.

1. Installer must verify that deflection under all live, dead and impact loads of interior plywood floors does not exceed industry standards of L/360 for ceramic tile and brick or L/480 for stone installations where L=span length.
2. Minimum construction for interior plywood floors.
   SUBFLOOR: 5/8" (15 mm) thick exterior glue plywood, either plain with all sheet edges blocked or tongue and groove, over bridged joints spaced 16" (400 mm) o.c. maximum; fasten plywood 6" (150 mm) o.c. along sheet ends and 8" (200 mm) o.c. along intermediate supports with 8d ring-shank, coated or hot dip galvanized nails (or screws); allow 1/8" (3 mm) between sheet ends and 1/4" (6 mm) between sheets edges; all sheet ends must be supported by a framing member; glue sheets to joints with construction adhesive.
   UNDERLAYMENT: 5/8" (15 mm) thick exterior glue plywood fastened 6" (150 mm) o.c. along sheet ends and 8" (200 mm) o.c. in the panel field (both directions) with 8d ring-shank, coated or hot dip galvanized nails (or screws); allow 1/8" (3 mm) to 1/4" (6mm) between sheets and 1/4" (6 mm) between sheet edges and any abutting surfaces; offset underlayment joints from joints in subfloor and stagger joints between sheet ends; glue underlayment to subfloor with construction adhesive. Refer to Technical Data Sheet 152 "Bonding Ceramic Tile Stone or Brick Over Wood Floors" for complete details.
3. **DO NOT** bond to particle board, luan, Masonite® or hardwood surfaces.

Mixing

Pour LATAPOXY 300 Adhesive Part A and Part B into a clean mixing pail and mix thoroughly. Add LATAPOXY 300 Part C Filler Powder and mix to a smooth, trowelable consistency. Mortar is ready for use immediately after mixing.

Application

Apply mortar to the substrate with the flat side of the trowel, pressing firmly to work into surface. Comb on additional mortar with the notched side.

Note: Use the proper sized notched trowel to ensure full bedding of the tile. Back butter large tiles >300 mm x 300 mm to provide full bedding and firm support. Place tiles into wet, sticky mortar and beat in using a beating block and rubber mallet to embed tile and adjust level. Check mortar for complete coverage by periodically removing a tile and inspecting bedding mortar transfer onto back of tile.

AVAILABILITY AND COST

Availability

LATICRETE and LATAPOXY materials are available worldwide. For distributor information, call:
Telephone: (65) 6515-3028
Fax: (65) 6515-3037
For on-line distributor information, visit LATICRETE at se.laticrete.com

Cost

Contact a LATICRETE Distributor in your area.

WARRANTY

LATICRETE International warrants LATAPOXY 300 Adhesive is free from manufacturing defects and will not break down, deteriorate or disintegrate under normal usage for a period of one (1) year from date of purchase subject to terms and conditions.

MAINTENANCE

LATICRETE and LATAPOXY grouts require routine cleaning with a neutral pH soap and water. All other LATICRETE and LATAPOXY materials require no maintenance but installation performance and durability may depend on properly maintaining products supplied by other manufacturers.

TECHNICAL SERVICES/ CONTACT

Technical Assistance

Information is available by calling:

LATICRETE South East Asia Pte Ltd
No. 38 Sungei Kadut Street 2
(Level 2, A3)
Singapore 729245
Telephone: (65) 6515-3028
Fax: (65) 6515-3037
Email: enquiry@laticrete.com.sg

Technical and safety literature

To acquire technical and safety literature, please visit our website at se.laticrete.com

ESTETIC
130+8

EN

- completely invisible hinge for left- and right-handed doors
- for claddings up to 8mm, load capacity 130 kg/2 hinges
- for use in wooden, steel and aluminum profiles
- for non-rebated doors
- lubrication-free bearing
- 3D adjustment (side +/-3mm, height +/- 3mm, compression +/- 1mm)
- steel front covers (magnetic fixing)
- 180° opening angle

IT

- cerniera a scomparsa totale per porte destre e sinistre
- per rivestimenti fino a 8 mm, portata 130 kg/2 cerniere
- per l'impiego in profili di legno, acciaio e alluminio
- per porte senza battuta
- cuscinetti senza necessità di lubrificazione
- regolazione 3D (laterale +/- 3mm, altezza +/- 3mm, compressione +/- 1mm)
- coperture frontali in acciaio (fissaggio magnetico)
- angolo di apertura 180°

ES

- bisagras completamente ocultas diseñadas para puerta izquierdas y derecha
- para revestimientos de hasta 8 mm de grosor, con una capacidad de carga de 130 kg por cada par de bisagras
- para su uso en perfiles de madera, acero y aluminio
- para puertas no batientes
- rodamiento sin lubricación
- ajuste 3D (lateral +/-3mm, altura +/- 3mm, compresión +/- 1mm)
- cubiertas frontales de acero (fijación magnética)
- ángulo de apertura de 180º

FR

- charnière invisible pour portes droite et gauche
- pour revêtement jusqu'à 8 mm, résistance 130 kg/2 charnières
- pour profilés en bois, acier et aluminium
- pour portes affleurantes
- palier sans lubrification
- réglage 3D (côté +/-3mm, hauteur +/- 3mm, compression +/- 1mm)
- caches avant en acier (fixation magnétique)
- angle d'ouverture de 180 °

Covered by European Technical Assessment / coperti dalla Valutazione Tecnica Europea / cubiertos por la Evaluación Técnica Europea / ont reçu l'Évaluation Technique Européenne **ETA-23/0190.** Classification according to / classificazione in base a / clasificación según / classification selon la **EN 1935** and **EAD 020001-01-0405.**

4	7	6	1	1	*	0	13

* corrosion resistance depending on the finish / la resistenza alla corrosione dipende dalla finitura / resistencia a la corrosión, dependiendo del tipo de acabado / résistance à la corrosion suivant par la finition

FINISHING / FINITURE / ACABADO / FINITIONS

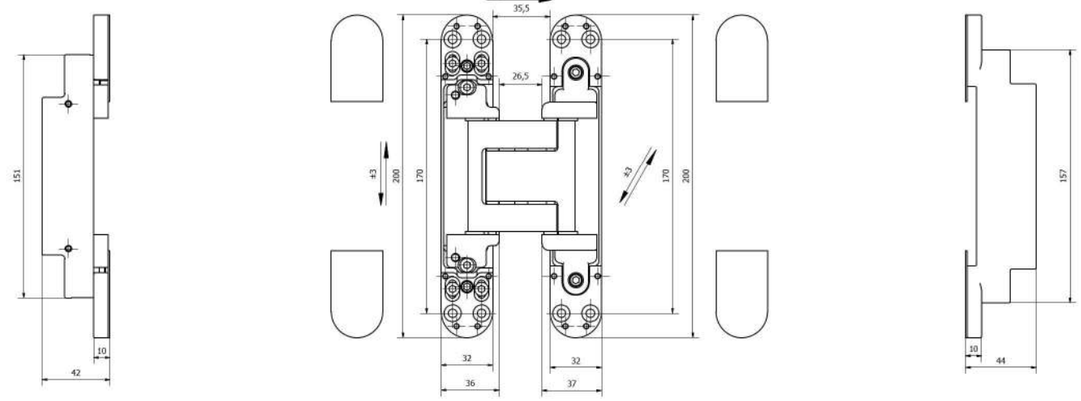
customised finishes on request / finiture personalizzate su richiesta
acabados personalizados a petición / finitions personnalisées en option

e8054
Satin nickel epoxy
Nichel satinato epossidico
Níquel satinado epoxy
Nickel satiné époxy

e8060
Satin chrome epoxy
Cromato satinato epossidico
Cromo satinado epoxy
Chrome satiné époxy

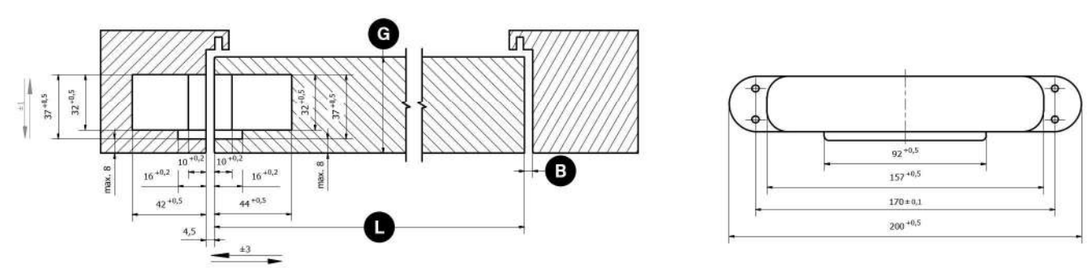
e9005s
Black matte epoxy
Nero opaco epossidico
Negro mate epoxy
Noir mat époxy

e9016s
White matte epoxy
Bianco opaco epossidico
Blanco mate epoxy
Blanc mat époxy



LOAD CAPACITY / CAPACITÀ DI CARICO / CAPACIDAD DE CARGA / RÉSISTANCE

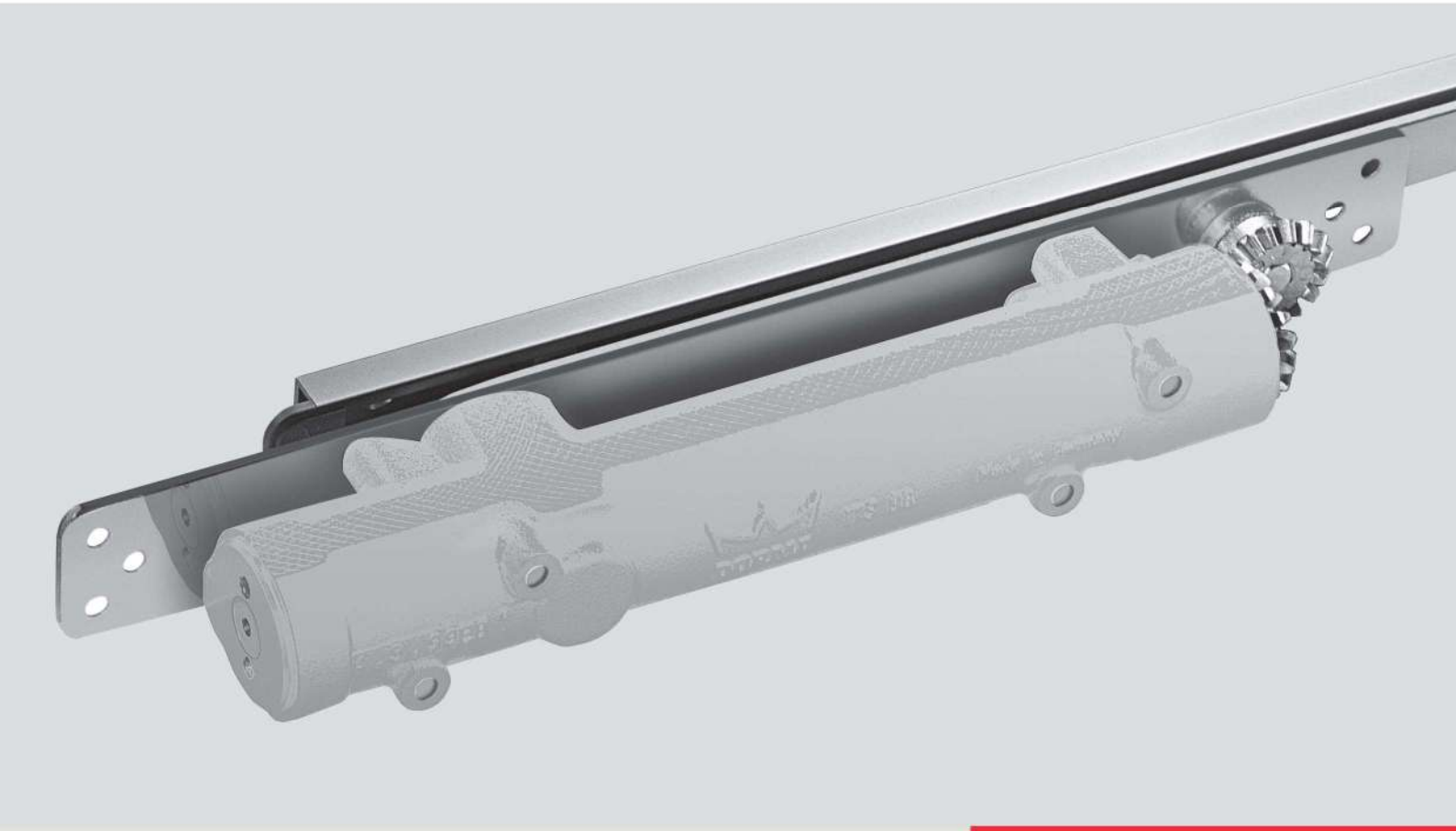
Hinges number Numero cerniere Nombre de bisagras N° charnières	Door width Larghezza porta Ancho de la puerta Largeur porte	700 mm	800 mm	900 mm	1000 mm
2		167 Kg	146 Kg	130 Kg	117 Kg
3		188 Kg	164 Kg	146 Kg	132 Kg
4		209 Kg	183 Kg	163 Kg	146 Kg



HINGE POSITION / POSIZIONE CERNIERA / POSICIÓN DE LA BISAGRA / POSITION CHARNIÈRE

	G Door thickness Spessore porta Grosor de la puerta Épaisseur porte	L Door width Largezza porta Ancho de la puerta Largeur porte	700 mm	800 mm	900 mm	1000 mm
Minimum gap Distanza minima Espacio mínimo Espace minimum B	40 mm		4 mm	4 mm	3 mm	3 mm
	60 mm		5 mm	4 mm	4 mm	4 mm
	80 mm		6 mm	6 mm	5 mm	5 mm

dormakaba



ITS 96

ITS 96 FL

Concealed cam-action
door closer system

Engineering at its best

The closer and slide channel of the ITS 96 are of such compact design that they can be installed for complete visual concealment in the door and frame. At the same time, they offer the same level of user convenience expected from high-quality door closers, combined with a wide range of functionality. Its compactness means that the ITS 96 system can be installed in virtually all doors with a leaf thickness of 40 mm or more.

The ITS 96 FL (hold-open device with free-swing function) is ideally combinable with the existing slide channels and accessories generally available for the ITS 96, which means that the existing portfolio of add-ons can be utilised without any change. The area of application for this model extends to the protection of fire and smoke check doors and also general doors in senior homes, centres for the disabled, and hospitals.

Plus points...

...for the trade
- Low inventory costs and reduced stocking requirements thanks to streamlined modular system and separate packaging of closer body and slide channel assemblies.
- Same slide channels and accessories for the ITS 96 and ITS 96 FL.

...for the installer
- Non-handed system.
- Apart from the length, the installation dimensions of the ITS 96 EN 3-6 and the ITS 96 FL EN 3-6 are identical.
- Easy adjustment of the closing strength, closing speed and latch action after hanging of the doors.

...for the specifier/architect
- Unblemished appearance of prestige doors thanks to concealed installation.
- Compliance with statutory requirements for barrier-free building.
- Universally suitable for single or double doors.

...for the user
- Optimum protection against vandalism thanks to the concealed installation.
- Enhanced user convenience and fully controlled, reliable closing with adjustable latch action.
- Free-swing function from a door angle >0°, resulting in virtually resistance-free opening of the doors in applications requiring passive fire protection.

Data and features		**ITS 96**		**ITS 96 FL**
Variable closing force	Spring strength	EN 2–4	EN 3–6	EN 3–6
Standard doors[1]	up to 1100 mm	●	●	●
	up to 1400 mm	–	●	●
External doors, outward opening		–	–	–
Fire and smoke check doors[1]	up to 1100 mm	●	●	●
	up to 1400 mm	–	●	●
Door leaf thickness	from 40 mm	●	–	–
Non-fire doors	from 50 mm	●	●	●
Max. door leaf weight in kg		130	180	180
Non-handed design (closer)		●	●	●
Arm	Slide channel	●	●	●
Closing force variable by means of adjustable screw		●	●	●
Closing speed adjustable by means of valve		●	●	●
Latching speed adjustable by means of valve		●	●	●
Cushioned limit stay, mechanical		●	●	●
Delayed action		–	–	–
Hold-open		O	O	–
Max. door opening angle (depends on door design)		approx. 120°		
Input voltage		–	–	24 V DC ± 15 %
Power consumption		–	–	3 W
Weight in kg		1.3	2.5	4.2
Dimensions in mm	Length	277	291	476
	Width	32	39.5	39.5
	Height	42	51	51
Door closer tested to EN 1154		●	●	●
Hold-open devices tested to EN 1155		●	●	●
Door co-ordinators tested to EN 1158		●	●	●
CE mark for building products		●	●	●
Suitable for barrier-free building to DIN 18040 and DIN SPEC 1104 (CEN/TR 15894)		●	●	●
ANSI 156.4		●	–	–

● Yes – No O Option

1) For applications involving particularly heavy or wide doors, and doors which have to close against wind resistance, the next highest door closer size should be selected, or the closing force adjusted to a higher setting.

certifire

The ITS 96 is CERTIFIRE approved (Certificate No. CF140) for door types ITT 60, MM/IMM 240.

ITS 96

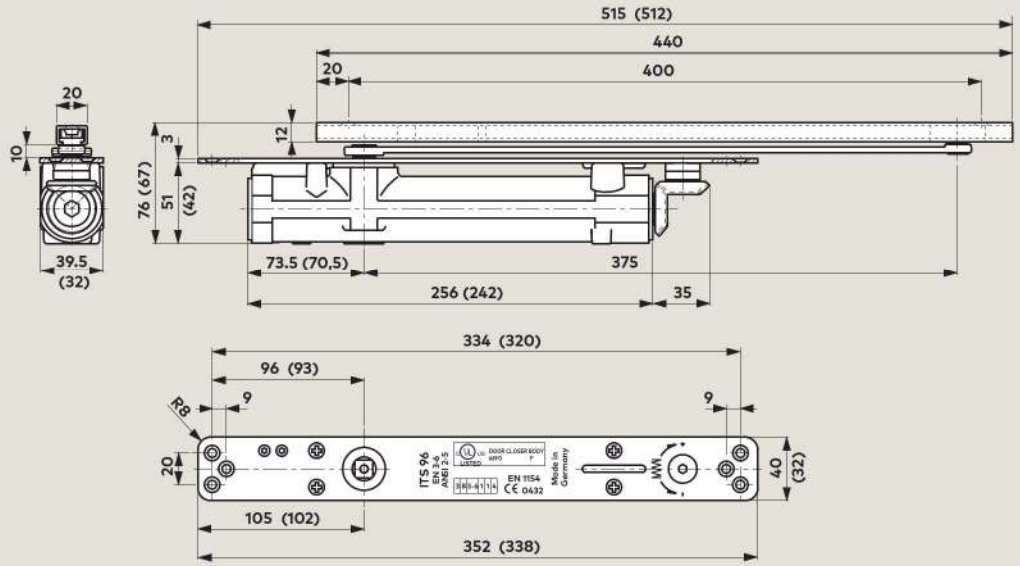
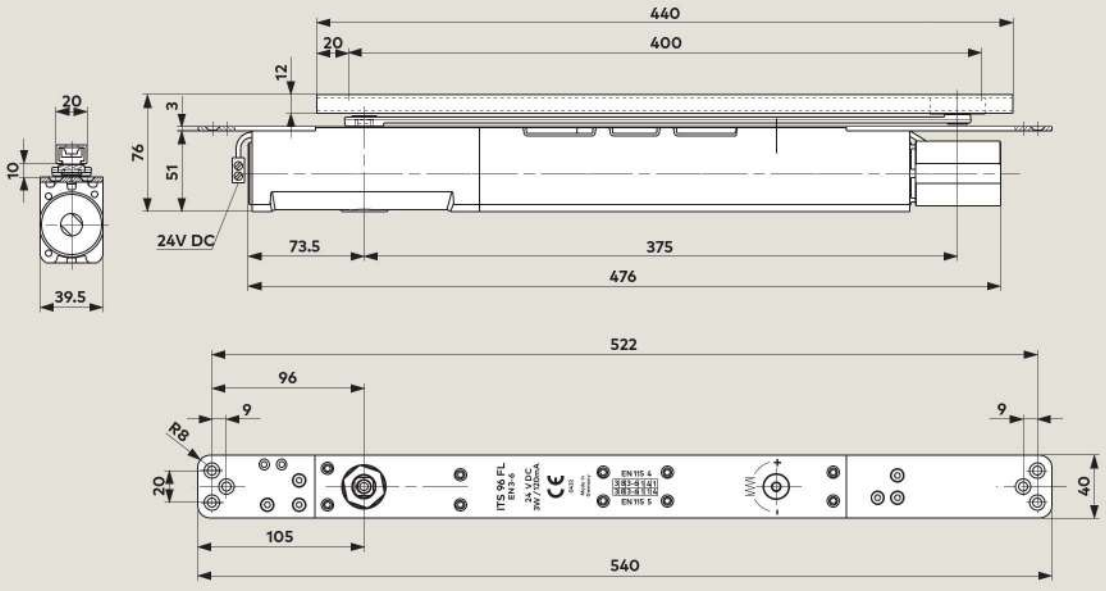


Illustration shows the ITS 96, size 3 – 6 with UK standard spindle and G96 N20 arm and channel
Dimensions shown in ( ) = ITS 96, size 2 – 4 with UK standard spindle and G96 N20 arm and channel

ITS 96 FL

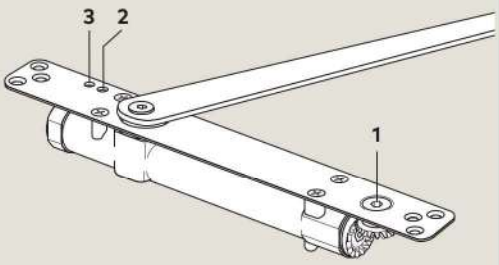


ITS 96FL with standard UK spindle and G96 N20 arm and channel

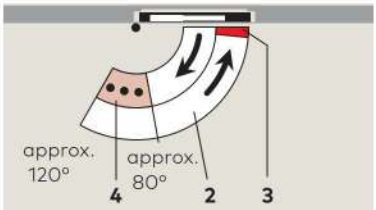
ITS 96 Cam-action door closer

Adjustment of settings

The functions of the ITS 96 can be individually adapted to the local conditions of each application. The closing strength can be easily varied in accordance with the door width via the adjustment screw accessible from the top. The closing speed and the latch action can likewise be modified at any time using adjustment screws at the top, even after the door has been hung.



1 Screw for adjusting the closing strength
2 Valve for adjusting the closing speed
3 Valve for adjusting the latching speed



2 Fully controlled closing with adjustable speed

3 Adjustable latch action

4 Cushioned limit stay

F Approval certification

The ITS 96 is approved by the State Material Testing Authority, Dortmund, in accordance with EN 1154.

Additionally, the model sizeEN 2 – 4 and EN 3 – 6 has CERTIFIRE approval for use on timber FD30 and FD60 doors (code ITT), when installed with the approved intumescent gasket set for FD30 or FD60 supplied by dormakaba UK.

The length, width and height of mortice for the body and slide channel must be increased by 2 mm to accommodate the gasket.

Specification text

Cam-action door closer to EN 1154 for integration in the door leaf or frame, with rapidly decreasing opening resistance, for easy door opening action to DIN SPEC 1104.

Closing force, closing speed and latch action infinitely variable. Non-handed, with slide channel... (see pages 10 – 29).

certifire

The ITS 96 is CERTIFIRE approved (Certificate No. CF140) for door types ITT 60, MM/IMM 240.

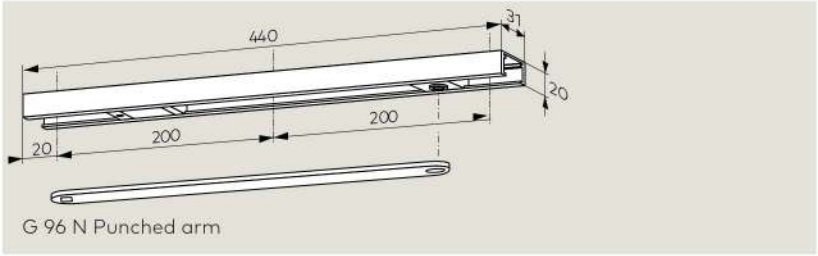
Size

☐ EN 2 – 4
☐ EN 3 – 6

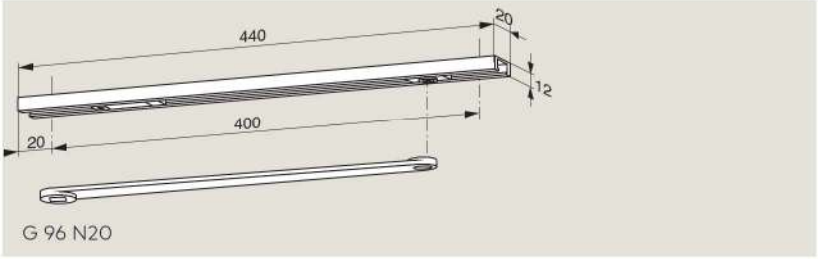
Make

ITS 96

G 96 and G 96 N20 Slide channels



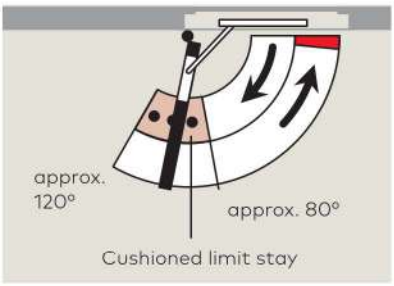
G 96 N Punched arm

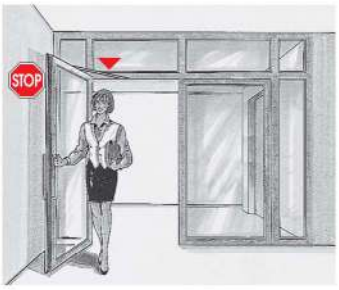


G 96 N20

F Approval certification

The G 96 N and G 96 N20 slide channel is tested to EN 1154 in conjunction with the ITS 96 and ITS 96 FL. Additionally, the model size EN 2 – 4 and EN 3 – 6 has CERTIFIRE approval (CF.140) for use on timber FD30 and FD60 doors (code ITT), when installed with the approved intumescent gasket set for FD30 or FD60 supplied by dormakaba UK. The length, width and height of mortice for the body and slide channel must be increased by 2 mm to accommodate the gasket on 30 minute doors and 4 mm on the channel only for 60 minute doors. The ITS 96 has 4 hour CERTIFIRE approval for metal doors.





The G 96 N Punched arm is non-handed and includes the arm, slide block, cushioned limit stay and fixing screws.

The G 96 N Punched arm cannot be used with the reduced spindle unit.

Specification text

ITS 96 ... door closer (see pages 4 and 7) with slide channel G 96 N

The G 96 N20 slide channel pack is handed, and includes the arm, slide channel, slide block, cushioned limit stay and fixing screws, and can be combined with both door closer sizes in the ITS 96 range.

The G 96 N20 slide channel is adjustable to K8/K12.

Specification text

ITS 96 ... door closer (see pages 4 and 7) with slide channel G 96 N20

Version

☐ RH (ISO 5) K8/K12
☐ LH (ISO 6) K8/K12

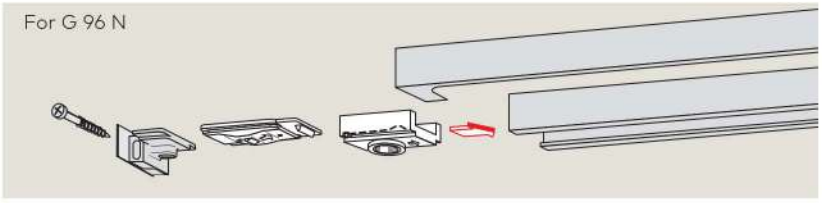
Cushioned limit stay

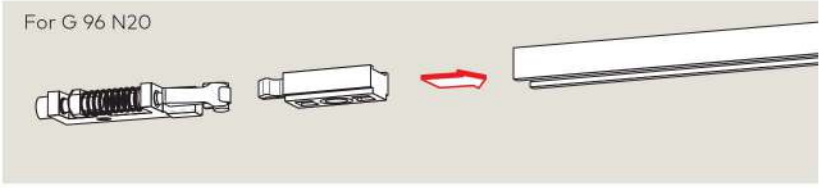
The integrated mechanically cushioned limit stay of the ITS 96 is progressively damped to protect the wall and doors from the damage arising from the door being opened too wide (under conditions of normal usage). It can be adjusted to an opening angle between approx. 80° and max. 120°.

The cushioned limit stay feature is not an overload protection device and in many cases cannot replace a doorstop.

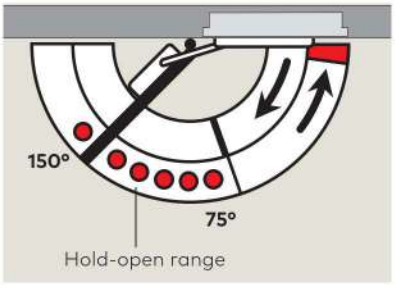
Hold-open unit

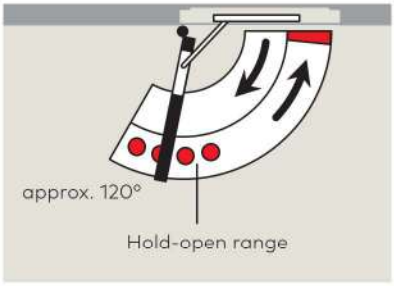
Not for fire and smoke check doors.





The RF hold-open unit enables doors to be securely held without any fall-back at precisely the required position up to an opening angle of approx. 120°. The pull-off force can be adjusted to any door situation. The RF mechanism is non-handed.





Lever handles

Stainless Steel Lever Handles RLH-S Series

Images	Material Description	Article No.
Common Specifications	Stainless steel Tubular lever handle 50 mm dia Rose & Euro profile escutcheon Grade 304 Stainless Steel Made in China	
	**RLH-S SY01** Length: 135 mm	0000
	**RLH-S SY02** Length: 140 mm	0000
	**RLH-S SY03** Length: 135 mm	0000

Aluminum Lever Handles RLH-D Series

MOQ-1000 Pairs

	**RLH-D AL217-ZR23** Matt Satin Black / Chrome Plated finish.	0000

Note:
-Product in the package may not be exactly same as the image due to continuous development by dormakaba. The finish shown in the images may differ and are for illustration purpose only.
-Lever handles are sold in pairs. Price above are per pair.

LEGENDS
MOQ - Minimum Order Quantity

Home

dormakaba

PRODUCT : Locks

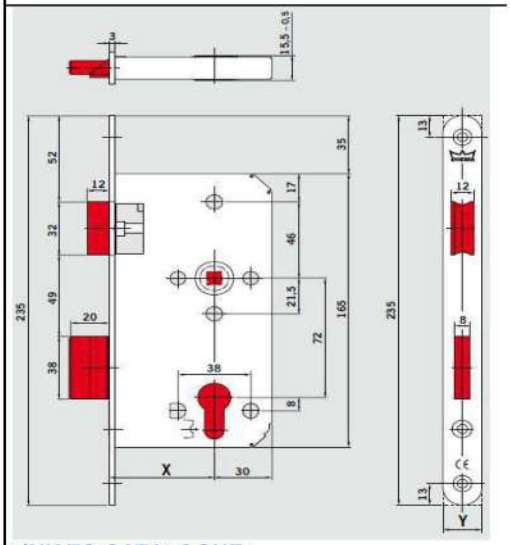
MODEL : 281 Lock

DESCRIPTION : Mortise lock for Fire rated doors, LATCH and DEADBOLT, non-handed, 8mm spindle follower, for Euro profile cylinder, 24 mm square forend, 55mm backset, 20mm double throw bolt projection. Conforms to DIN 18251-1, Conforms to EN 12209 - Grade 2, with 020 square strike plate. CE Marked. Grade 304 satin stainless steel.

FINISH : SSS

MANUFACTURER : dormakaba

DATA AND FEATURES :



LINK TO CATALOGUE:

https://www.dormakaba.com/ae-en

CERTIFICATIONS:

Certificate of Approval No. CF 267

certifire

Classification Code

2	S	8	1	0	G	3	H	C	2	0

CE mark for building products

CE

Mortice lock 281

Locks for interior and exterior doors, e.g. in office buildings

Features

Grade 2 – EN 12209
approved for fire-rated doors with CE certificate
- Lock case size DIN 18251-1, closed case, zinc plated
- lock case prepared for Euro profile cylinder (DIN18252) and standard fittings
- latch handing is reversible
- latch and dead bolt, stainless steel, satin
- follower, stainless steel, 8 mm square hole, mounted in drawn steel bushes
- centred forend, satin stainless steel 1.4301 / AISI 304

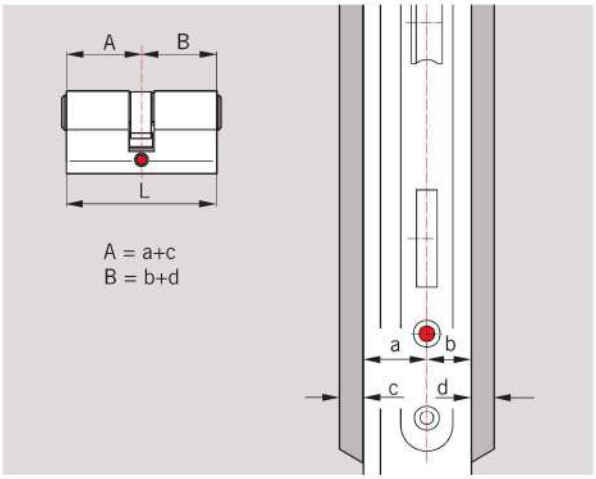
Recommended Strike plate: 20 **side: non-handed**

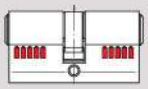
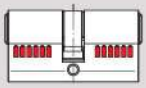
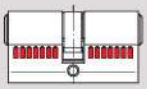
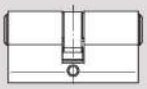
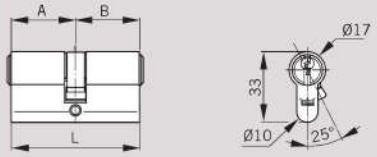
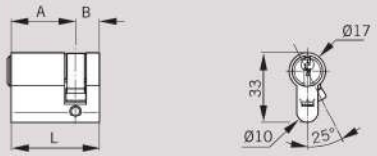
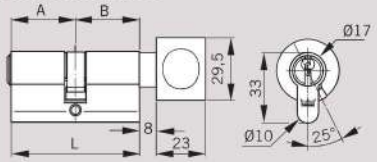
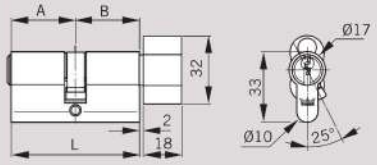
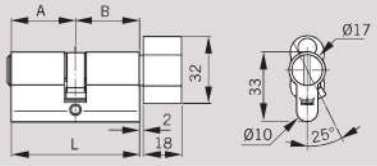
X Backset

The DORMA DEC series is a fully suited, comprehensive range of economical euro profile cylinders across a broad range of applications. Available in 5-pin, 6-pin and 7-pin variants with DORMA design keys. The high-performance DEC series offers security, durability and flexibility.

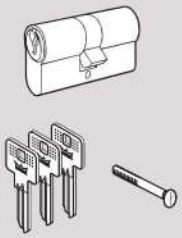
Benefits

- An economical alternative to the architectural cylinders.
- 5-pin, 6-pin and 7-pin variants available.
- Protected DORMA design keys.

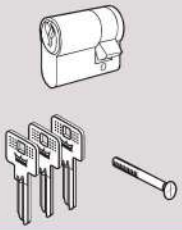


Profile cylinder	DEC 50 Series	DEC 60 Series	DEC 70 Series	DEC Toilet cylinder
	 5 pins	 6 pins	 7 pins	
Double profile cylinder 	●	●	●	
Half profile cylinder 	●	●	●	
Double profile cylinder with round knob 	●	●	●	
Double profile cylinder with peanut shape knob 	●	●	●	
Toilet profile cylinder with peanut shape knob 				●

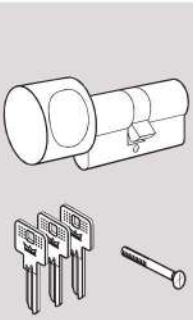
DEC 60				Order Nr.
DEC 60 Double Profile Cylinder				
Pin: 6, Keying: KD, including 3 keys and fixing screw				
	L	**(A+B)**	**Finish**	
Symmetric	60	(30+30)	satin nickel	6800055
			satin brass	6800056
	65	(32,5+32,5)	satin nickel	6800057
			satin brass	6800058
	70	(35+35)	satin nickel	6800059
			satin brass	6800060
	71	(35,5+35,5)	satin nickel	6800061
			satin brass	6800062
Asymmetric	65	(30+35)	satin nickel	6800065
			satin brass	6800066



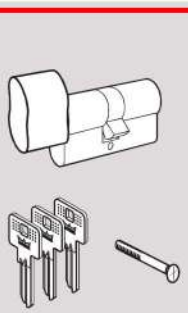
DEC 60 Half Profile Cylinder				
Pin: 6, Keying: KD, including 3 keys and fixing screw				
	L	**(A+B)**	**Finish**	
	40	(30+10)	satin nickel	6800067
			satin brass	6800068
	43	(33+10)	satin nickel	6800069
			satin brass	6800070
	45	(35+10)	satin nickel	6800071
			satin brass	6800072
	50	(40+10)	satin nickel	6800073
			satin brass	6800074



DEC 60 Double Profile Cylinder with Round Knob				
Pin: 6, Keying: KD, including 3 keys and fixing screw				
	L	**(A+B)**	**Finish**	
	60	(30+30)	satin nickel	6800075
			satin brass	6800076
	65	(32,5+32,5)	satin nickel	6800077
			satin brass	6800078
	70	(35+35)	satin nickel	6800079
			satin brass	6800080
	71	(35,5+35,5)	satin nickel	6800081
			satin brass	6800082
	75	(37,5+37,5)	satin nickel	6800083
			satin brass	6800084
	81	(40,5+40,5)	satin nickel	6800085
			satin brass	6800086



DEC 60 Double Profile Cylinder with Peanut Shape Knob				
Pin: 6, Keying: KD, including 3 keys and fixing screw				
	L	**(A+B)**	**Finish**	
	60	(30+30)	satin nickel	6800087
			satin brass	6800088
	65	(32,5+32,5)	satin nickel	6800089
			satin brass	6800090
	70	(35+35)	satin nickel	6800092
			satin brass	6800091
	71	(35,5+35,5)	satin nickel	6800094
			satin brass	6800093
	75	(37,5+37,5)	satin nickel	6800096
			satin brass	6800095
	81	(40,5+40,5)	satin nickel	6800098
			satin brass	6800097



KD = keyed to differ

11 WITNESSES THE TEST

Test sponsor and/or other representative(s) witnessing the test.	Mr. Nitin Kumar– representative of the Test Sponsor

12 SIGNATORIES

Prepared by	***Reviewed by***	***Authorized by***
Ginalyn Mauricio	Dr. Sebastian Ukleja	Dr. Sebastian Ukleja
Testing Engineer	*Testing Manager*	*Testing Manager*
Signature	Signature	Signature

--END OF REPORT--