



TEST REPORT

No.0552-24-TR-01

Fire Resistance Test for **“Latched Palm strand board fire rated single leaf door”** as per
Technical Documentation No. ABS00062-STD-FR-PSB-124 Rev 03 (09.10.2024)

according to:

- UL10-C:2016(R2021)

Date of issue:

October 10 2024

1 EXCLUSIVE SUMMARY

Test method:	UL10-C:2016(R2021) – Positive Pressure Fire Tests of Door Assemblies	
Name and address of the testing laboratory:	Emirates Safety Laboratory Al Warsan III, Dubai United Arab Emirates	
Date of specimen(s) delivery:	Test element with the technical documentation was delivered by the manufacturer to the laboratory on 27 th August 2024	
Date of specimen(s) installation:	27 th August 2024	
Date of testing:	30 th August 2024	
Name and address of the test sponsor:	Al Talah Board Manufacturing Co. LTD Abu Dhabi Free Zone (KIZAD), Plot no KHIA4-05 Taweelah, Abu Dhabi, United Arab Emirates	
Name and address of the manufacturer/supplier:	Door and Frame Assembly – Abanos Furniture & Decoration Industry LLC P.O. Box 114480 Dubai Investment Park 1 Dubai United Arab Emirates	Door and Frame Core – Al Talah Board Manufacturing Co. LTD Abu Dhabi Free Zone (KIZAD), Plot no KHIA4-05 Taweelah, Abu Dhabi, United Arab Emirates
Name of the test specimen(s):	Latched PSB fire rated single leaf door	
Identification of the test specimen(s):	Two wooden single leaf doors were installed in a high density rigid supporting construction with butt hinges and locks (with hinges on the exposed side, opening towards the furnace.)	
ESL Identification number:	0495-24-01 (Door 1) – PSB 124 – 4-layer door leaf, opening towards the furnace. 0495-24-02 (Door 2) – PSB 124 – 4-layer door leaf, opening towards the furnace.	
Description of sampling procedure including date if applicable:	Test specimens were selected, marked, and signed by Mr. Mohammed Nouman from Emirates Safety Laboratory (Certification Body) on 20/08/2024 as shown below, and delivered to ESL by the test sponsor. The results apply to the specimens as received. The Laboratory members were 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 UL 10C. The furnace thermocouples were placed at 6 in. (152 mm) from the surface of the test element. Heating conditions are shown in Graphs 1 and 2.
Furnace pressure:	The pressure in the furnace has been established at the top of the assembly and 40in. above the sill, in accordance with paragraph 7.2 of UL 10C. The pressure level during the test is shown in Graph 3.

Ambient temperature:

Measured during the test at 2000mm away from the specimen's unexposed face, at the test's commencement was 32.9°C. The ambient temperature during the test is shown in Graph 6.

3 DESCRIPTIONS OF THE TEST SPECIMEN

Constructional details of the single leaf doorsets of dimensions in the below table are presented in the technical documentation enclosed to this report.

Table 1

Measurement	Nominal (mm)		Measured by ESL (mm)	
	Door 1	Door 2	Door 1	Door 2
Width of the door leaf	1100	1100	1101	1101
Height of the door leaf	3000	3000	3002	3002
Door leaf thickness	72	72	72.9	72.6
Door frame thickness (jamb)	120	120	120	120
Door frame (w x h)	1214 x 3062	1214 x 3062	1218 x 3062	1217 x 3060
Door frame clear opening (w x h)	1070 x 2986	1070 x 2986	1075 x 2987	1075 x 2985

3.1 Description of the doorset

Both door assemblies are of the same design.

3.1.1 Door Frame Construction:

The door frame, of 120x72mm cross-section, was made of 4 layers of 18 mm Desertboard Palm strand board manufactured by Al Talah Board, with a density of 830 kg/m³. The door stop of 45x18mm of the same material and density was created within the door frame cross-section (see Figure 1). These layers of PSB are join using Kleiberit pur 501.0 adhesive, at an application rate of 200g/m².

The architrave consists of 18x60mm thick Desertboard PSB with a density of 830 kg/m³, was fixed on the exposed and unexposed sides as shown in the figure 1, respectively.

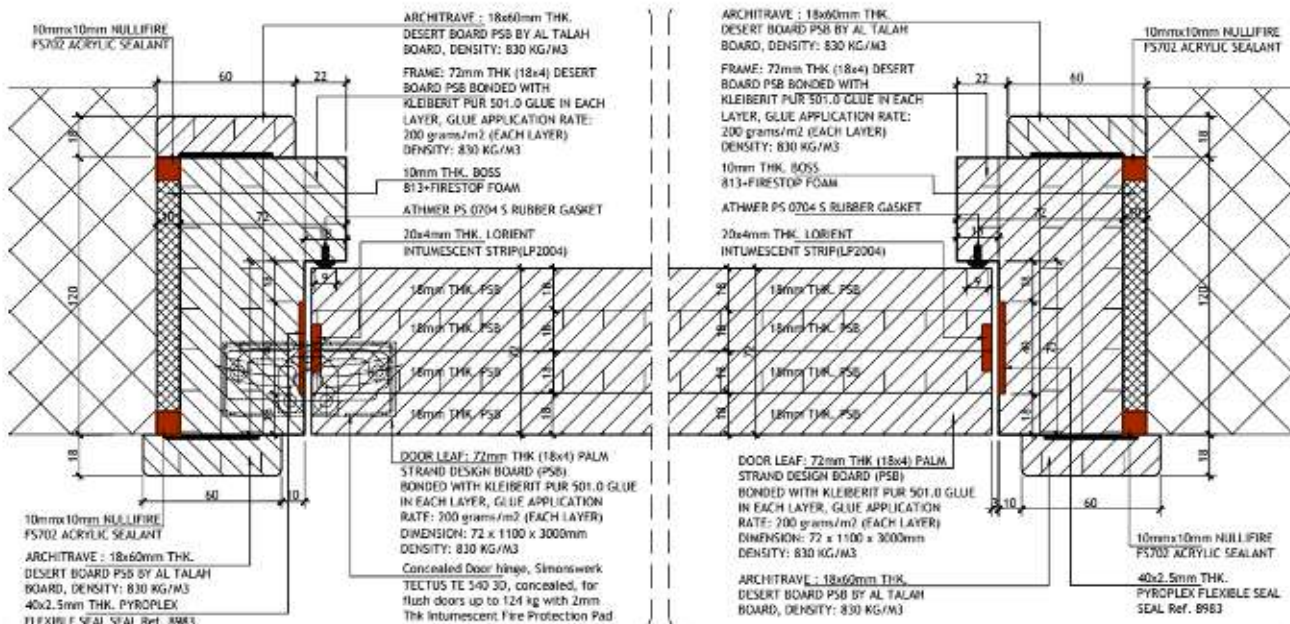


Figure 1. Door frame profile and door leaf core construction with sizes for both doors.

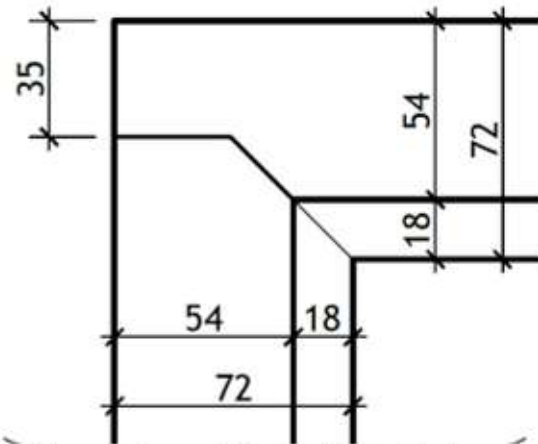


Figure 2. Frame joint detail for both doors.

3.1.2 Door Leaf Construction:

The door leaf with dimensions as per Table 1 and it consisted of four (4) layers of 18 mm thick Desertboard PSB with a density of 830 kg/m³ which were joined with the use of Kleiberit 501 PUR Glue produced by Kleiberit, at an application rate of 200g/m² per layer.

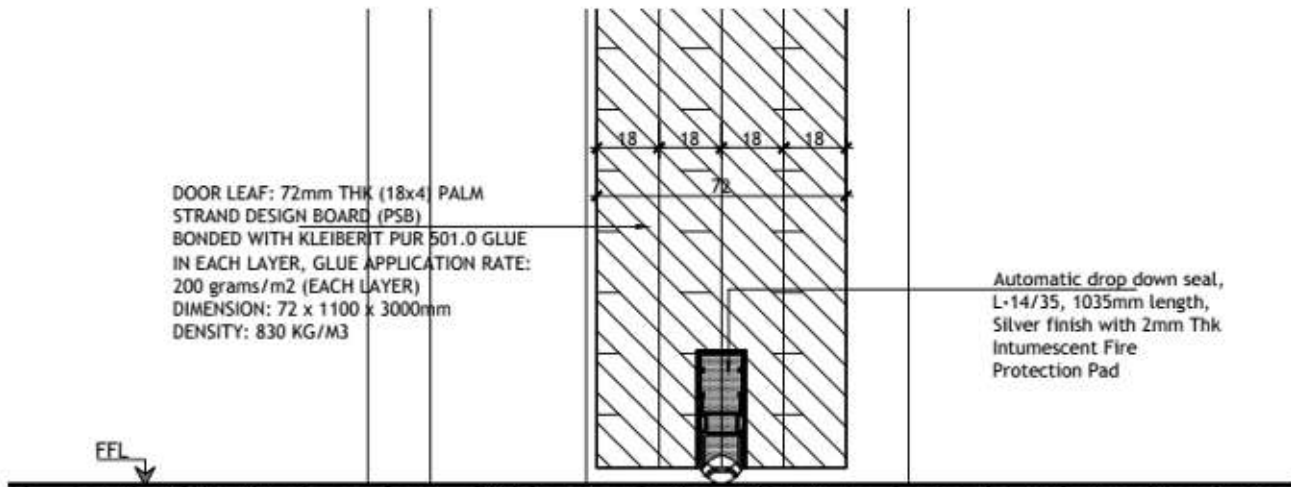


Figure 3. Bottom edge detail for both doors

Both of the doorsets have the same gaskets.

- 1 pc of 40 x 2.5 mm Pyroplex flexible seal (Part no. 8983), produced by Pyroflex – see figure 1 and photo 1 – door frame rebates.
- 1 pc of 20 x 4 mm Intumescent strip (LP2004), produced by Lorient, see figure 1 and photo 2 – door leaf edges.
- 1 pc of drop seal (L-14/35) a length of 1035 mm with 2mm intumescent fire protection kit, produced by Athmer see figure 2 and photo 2 – bottom of the door leaf.
- 1 pc of 11x7mm Rubber gasket (PS-0704-S), produced by Athmer – see figure 1 and photo 1 – in the door frame rebate.

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Photo 1. Frame rebate



Photo 2. Drop seal and intumescent strip on the door leaf bottom edge.

3.1.3 Door Hardware: Door 1 & Door 2 (both doorsets have same hardware)

Table 2

Lock		
	Door 1	Door 2
Manufacturer	HAFELE	
Description	LMD15	

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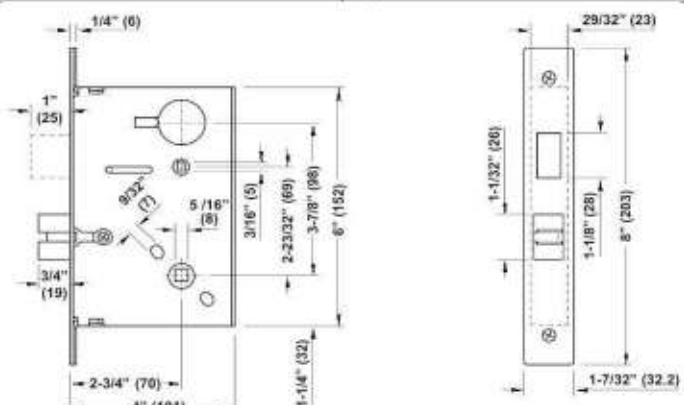
Lock		
Length of latch throw	18.03 mm (measured by ESL)	18 mm (Measured by ESL)
Reference:	LMD series – 911.82.163	
Quantity	1 pc of the lock set	1 pc of the lock set
Dimensions		
Fixing	the lock was fixed at 1088 mm from the bottom of the door leaf to the center of the lock case. (measured by ESL)	the lock was fixed at 1088 mm from the bottom of the door leaf to the center of the lock case. (measured by ESL)
Lock case protection	2mm thick fire protection pad.	

Table 3

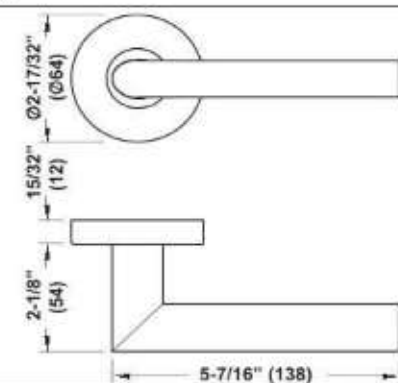
Handle		
	Door 1	Door 2
Manufacturer	HAFELE	
Description / type	ARIZONA	
Reference:	902.24.020	
Quantity	1set for the lock set	
Dimensions		
Fixing	The handle was fixed at 1045 mm from the bottom of the door leaf. (measured by ESL)	The handle was fixed at 1045 mm from the bottom of the door leaf. (measured by ESL)
Lock case protection	2mm thick intumescent fire protection kit	

Table 4

Cylinder		
	Door 1	Door 2
Manufacturer	HAFELE	
Description	Mortise 1-1/8" (29 mm) for sectional trim	
Reference:	911.82.163	
Quantity	1 pc in each specimen	

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Cylinder		
	Door 1	Door 2
Dimensions	1-1/8" (29 mm)	
Fixing	the cylinder was fixed at 1145 mm from the bottom of the door leaf. (measured by ESL)	the cylinder was fixed at 1145 mm from the bottom of the door leaf. (measured by ESL)
Fire protection kit	N/A	

Table 5.

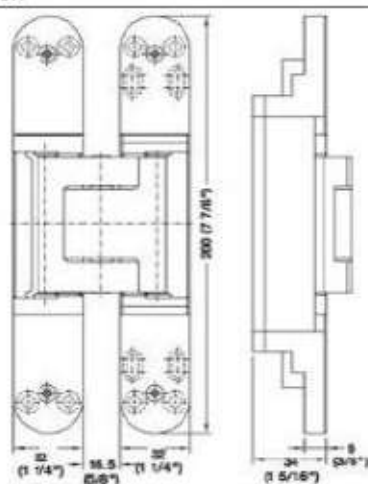
Hinges		
	Door 1	Door 2
Manufacturer	HAFELE	
Type	TECTUS Concealed hinges	
Reference	TE 540 3D	
Quantity	4 pcs in each specimen	
Dimensions		
Fixing	Hinges were fixed to the door leaf using 4 nos. of ABC screws with plug at 255 mm, 1303 mm, 2355 mm and 2755 mm from the bottom of the door leaf, (measured by ESL).	Hinges were fixed to the door leaf using 4 nos. of ABC screws with plug at 250 mm, 1305 mm, 2353 mm and 2757 mm from the bottom of the door leaf, (measured by ESL).
Protection	2mm thick intumescent fire protection kit	

Table 6.

Door closer		
	Door 1	Door 2
Manufacturer	Devon	
Type	Concealed Door Closer,	
Reference	86.216.62	
Quantity	1 PC in each specimen	
Dimensions	230 x 56 x 32 mm	
Fixing	Installed in a cut-out made in the door leaf.	
Protection	2mm thick fire protection kit	

Table 7

Drop Seal		
	Door 1	Door 2
Manufacturer	Athmer	
Description	drop seal with common groove dimension.	

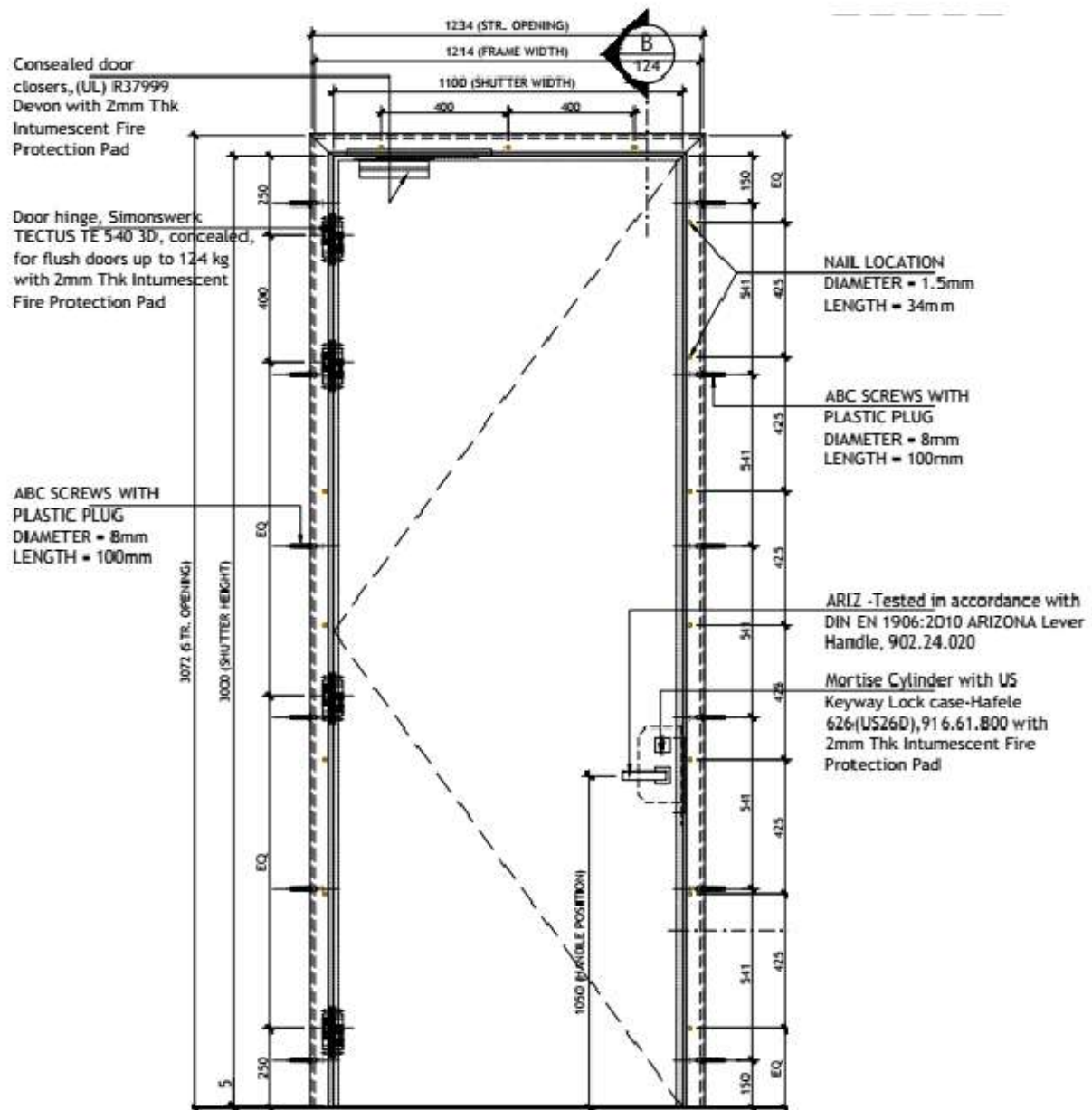


Figure 5. Unexposed side of the door leaf for both doors.

3.3 Description of the supporting construction

The specimen was installed within a high-density rigid supporting construction made of 150mm thick solid concrete masonry blocks and two structural openings of size 1234 x 3072 mm (w x h). The supporting construction filled the test frame of dimensions 4240x4240mm, made of a steel H-profile.

3.4 Verification

Verification of the test element(s) 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 manufacturer installed the door set on 27th-28th of August, 2024 in the previously mentioned conditioned supporting construction. The test specimen was conditioned for 1 day afterward under the following conditions:

- Average humidity: RH (%): 54.1
- Average temperature: temp. (°C): 30.3

4.2 Gaps measurements

Prior to the fire endurance test, gaps between the stationary and movable parts of the specimen were measured as per section 9.3 of UL 10C:2021. Measurements were taken on both the exposed sides. The provided table references the measurements, and the figure illustrates the details.

All measurements are in mm, as viewed from the exposed face of the specimen.

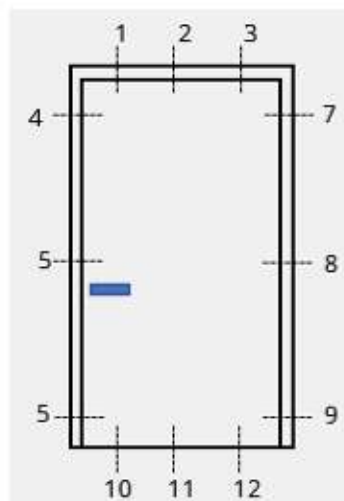


Figure 6. Measurement locations for gaps.

Table 8.

Door No. 1		Door No. 2	
No.	Exposed side	No.	Exposed side
1	3.54	1	3.84
2	3.49	2	3.79
3	3.51	3	5.28
4	3.10	4	2.88
5	2.74	5	2.86
6	1.87	6	2.39
7	3.29	7	3.14
8	3.24	8	2.67
9	3.32	9	2.50
10	4.64	10	4.13
11	5	11	3.94
12	5.17	12	3.43

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Some of the measurements were out of tolerances specified in section 9.3 of UL 10C:2021. For reference, the requirements are outlined below.

Table 9

GAPS			Measurements, mm	
			Permitted gap size	Actual gap size
Door set	Along the horizontal edges	At the top	3.1±1	As per table 8.
		At the bottom (Sill)	9.5(Single) or 6.4(Double) +0, - (minus) 1.6	
	Along the vertical edges	Hinge side	3.1±1	
		Between door leaves	3.1±1	
		Lock side	3.1±1	

4.3 Final Settings

Prior to the fire endurance test, the door was latched but not locked.

4.4 Arrangement of surface thermocouples and deflection measurement points

The positioning scheme of the surface thermocouples and deflection measuring points is shown in Figure 7 below.

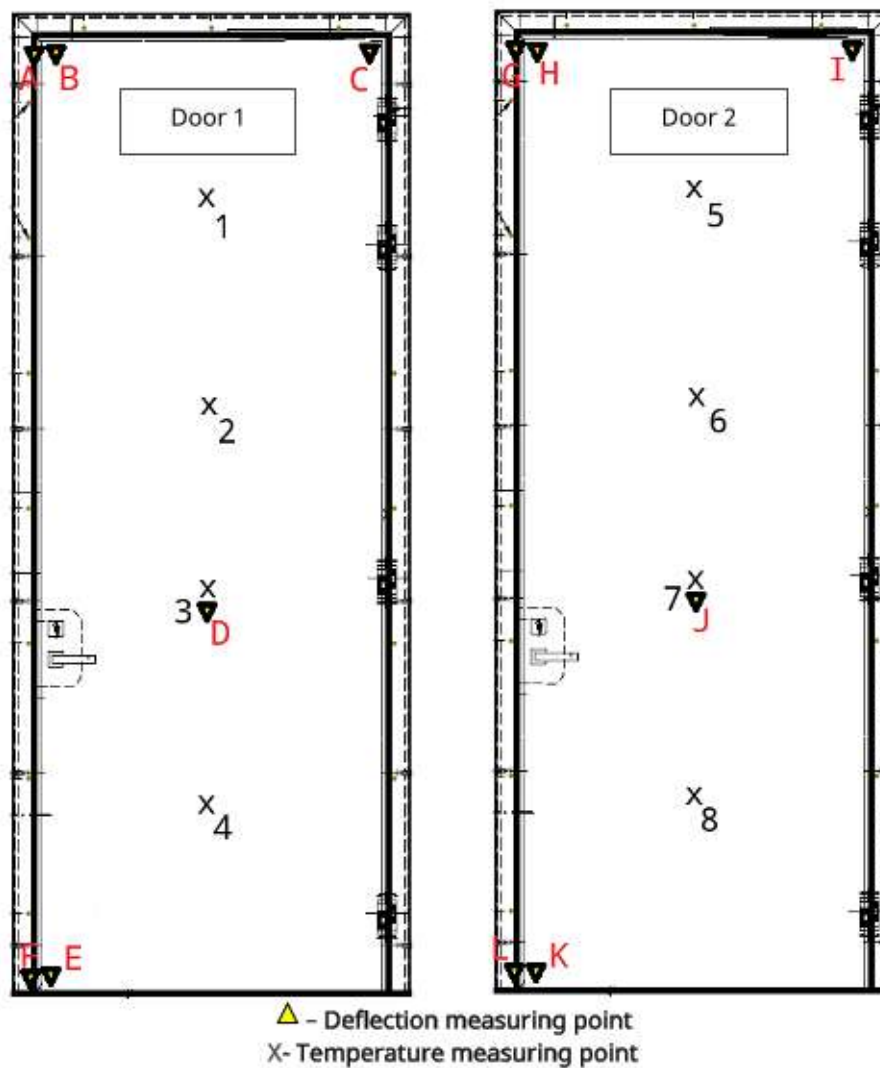
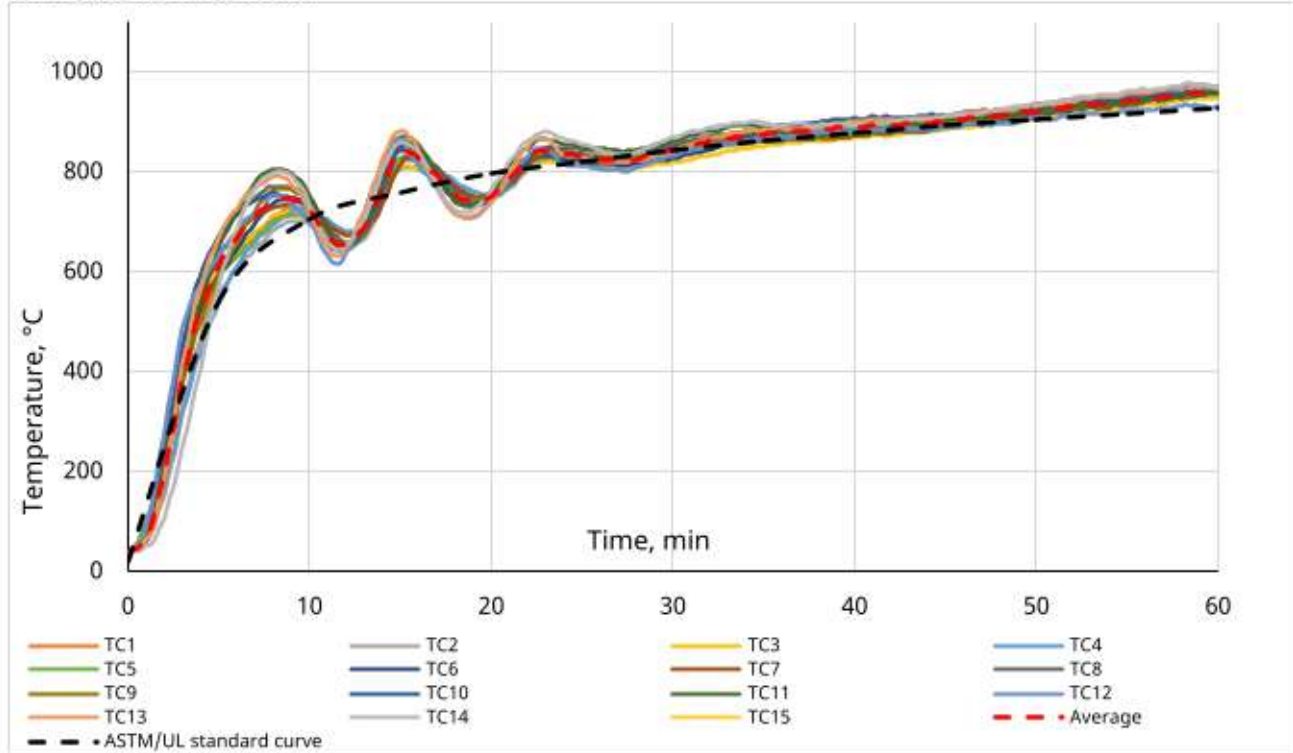


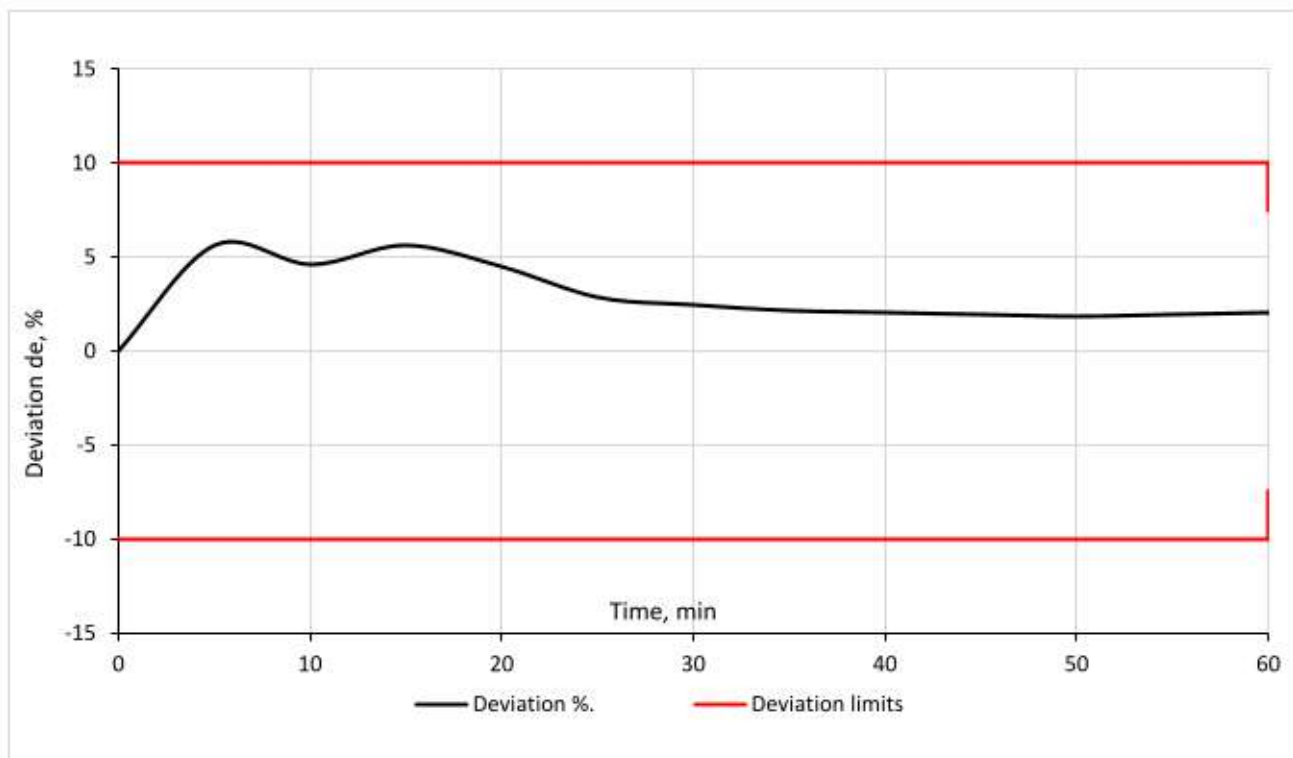
Figure 7. Scheme of the unexposed surface thermocouples and deflection measuring points on the door set.

5 TEST RESULTS

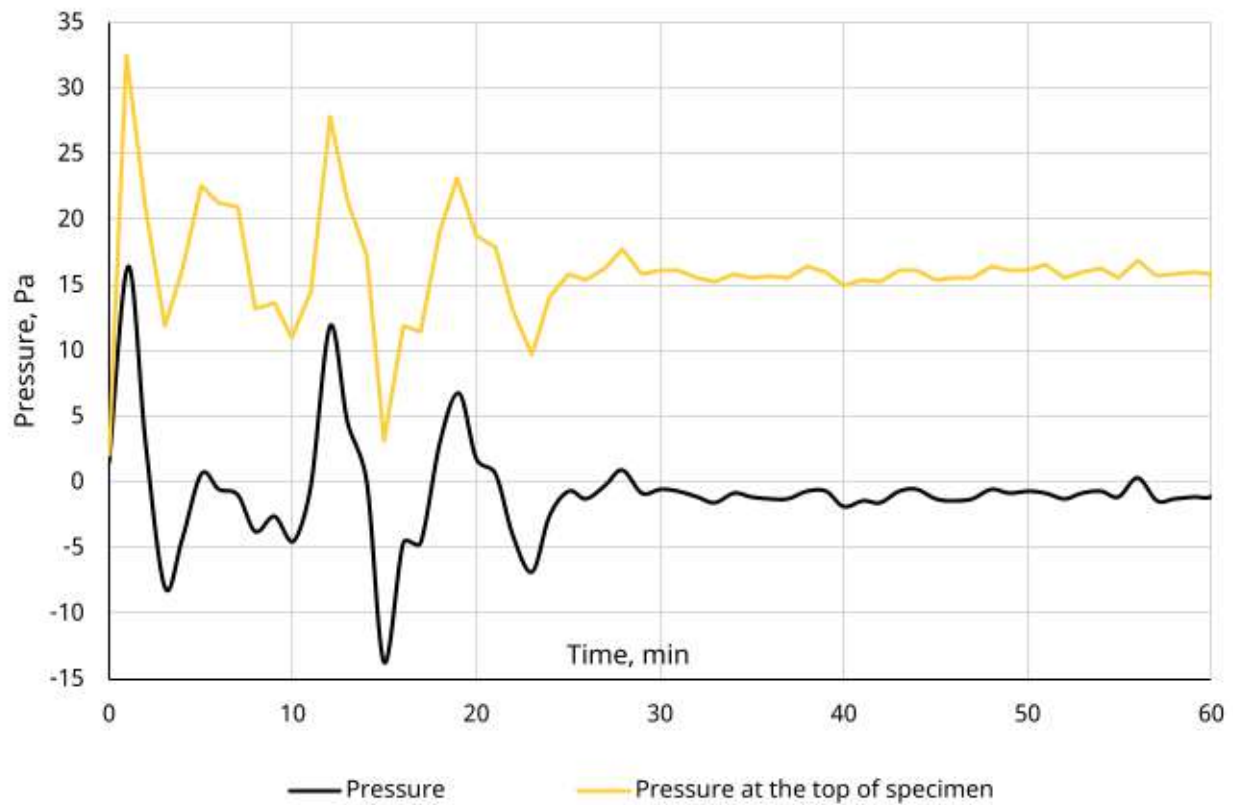
5.1 Furnace conditions



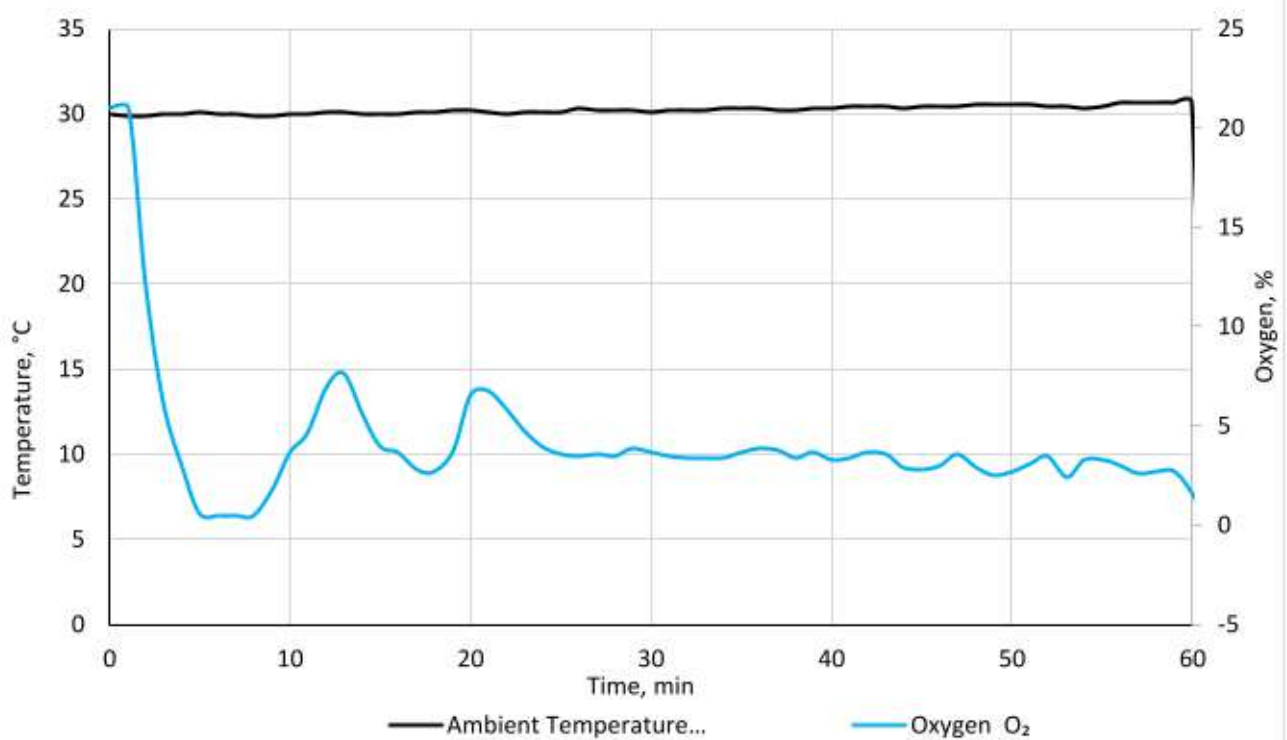
Graph 1. Temperatures in the furnace



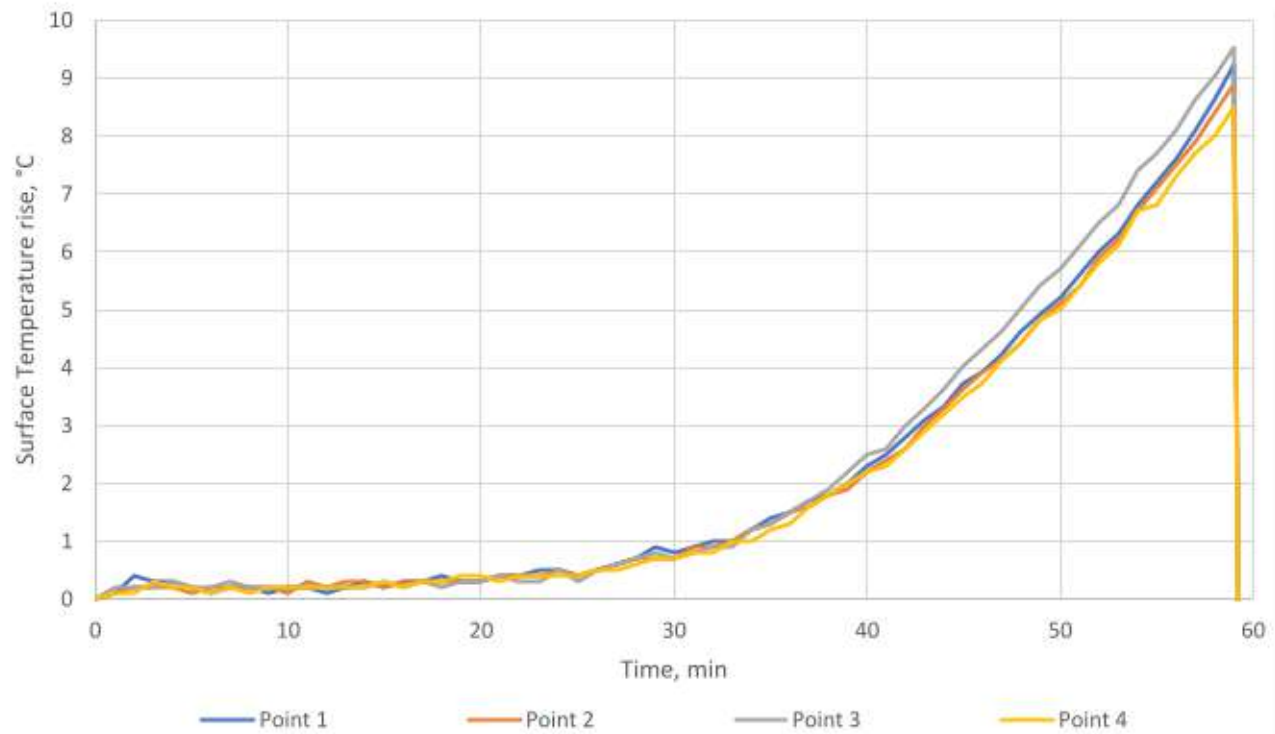
Graph 2. Deviation with tolerance limits



Graph 3. Pressure inside the furnace

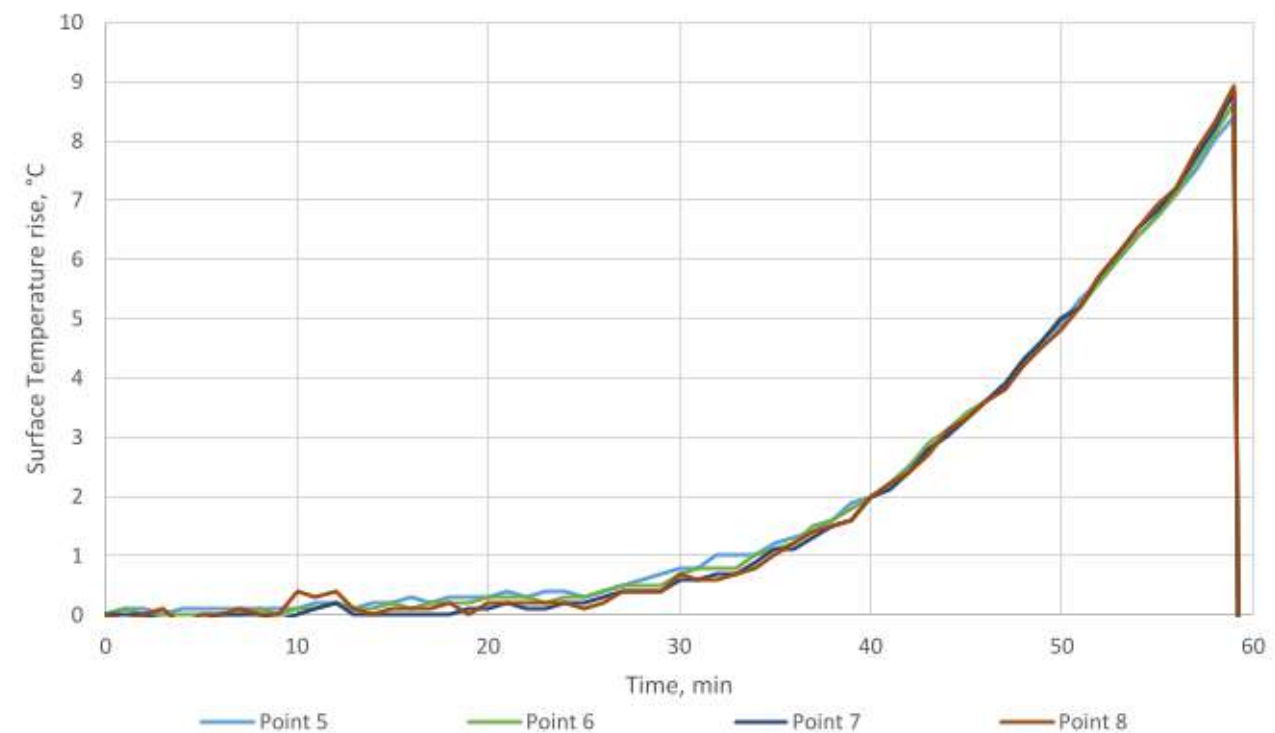


Graph 4. Ambient Temperature & Oxygen measurement



Note: Due to the preparation for the hose stream tests, thermocouples were removed.

Graph 5. Surface Thermocouple rise readings for Door 1



Note: Due to the preparation for the hose stream tests, thermocouples were removed.

Graph 6. Surface Thermocouple rise readings for Door 2

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5.2 Fire Endurance Test

5.2.1 Observations

Table 10

Time, (min)	OBSERVATIONS
0	Start of the test
4	Smoke from top edge of the doors.
6	Smoke on all edges of the doors.
21	Smoke has reduced on the specimens Top left corner has some kind of red charring.
27	Visible charring at top horizontal edge of door 1 leaf.
29	Visible bowing (which side) of door 2
35	top edge of door 1 and top left corner of door 2 have shown significant increase in charring.
46	Pinkish color has spread along the edges of door 1.
53	Smoke significantly reduced.
60	END OF FIRE ENDURANCE TEST.

5.2.2 Deflection measurements during the Fire Endurance Test

Table 11

"+" Deflection toward the furnace " Deflection outwards the furnace	Time	Deflection at the measuring point, mm											
	(min.)	Door 1						Door 2					
		A	B	C	D	E	F	G	H	I	J	K	L
	10	-2	0	+1	-1	+1	-1	+4	+6	0	-1	+2	0
	20	0	+3	+1	0	+3	-1	+5	+6	+1	+1	+5	-3
	30	0	+4	+1	+5	+3	-1	+4	+9	+2	-2	+5	0
	40	0	+2	+8	-3	-3	-1	+4	+9	+2	-2	+7	0
	50	0	+3	+8	+9	+3	0	+6	+5	+4	+1	+7	+2
Maximum deflection	+9 mm at Point D at 50 minutes							+9 mm at Point L at 30 minutes					

5.3 Post Hose Stream Test Observations

5.3.1 Observations

Table 12

Time, (min:sec)	OBSERVATIONS
0:00	Start of the hose stream test.
0:89	End of the hose stream test. The specimen has been subjected to the impact, erosion, and rapid cooling effects of the hose stream, and continued for 89 seconds at 30psi.

5.4 Post Hose Stream Test Observations

5.4.1 Unexposed Face Observations

Both door 1 and door 2 were still intact after the hose stream test, and the door frame was still intact to the supporting construction.

5.4.2 Exposed Face Observations

Both door 1 and door 2 were still intact, but there were noticeable cracks and charring on the entire surface of the door leaf and frames. The latches on both doors were intact, although the hinges have melted.

6 PHOTOGRAPHS

6.1 Unexposed side view of the test specimen



Photo 3. Before the Fire Endurance test.



Photo 4. 16 minutes of the Fire Endurance Test.

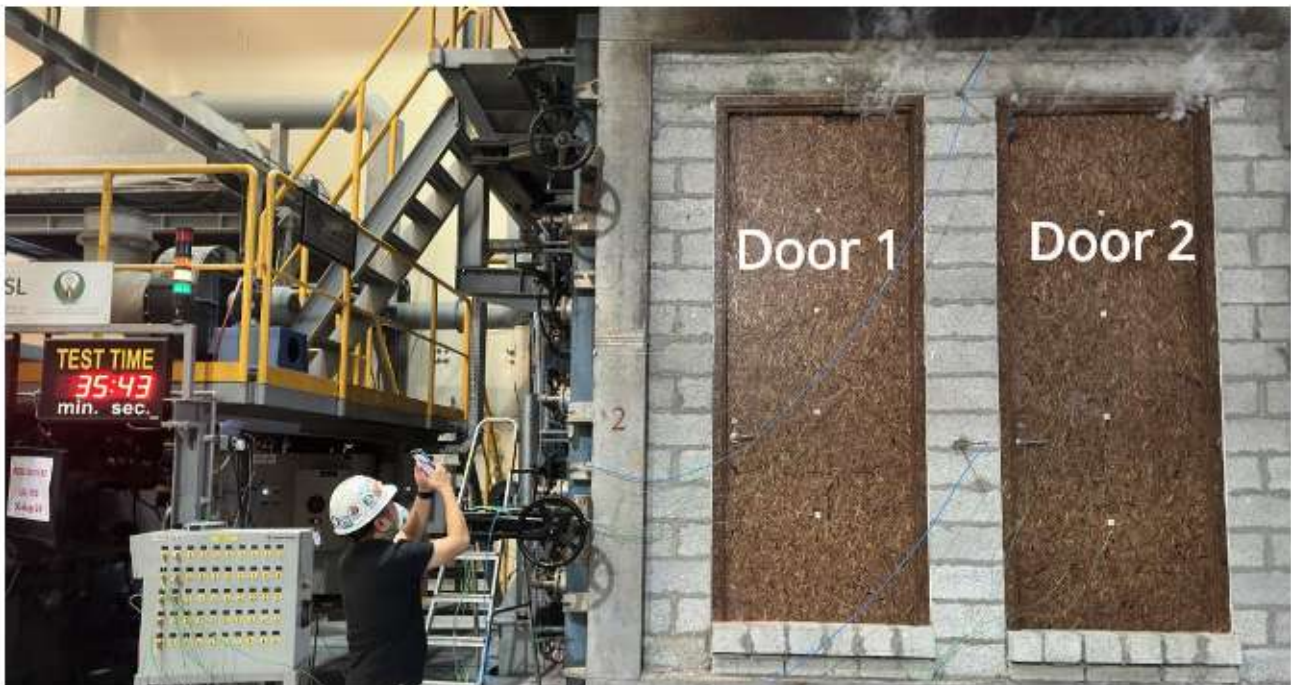


Photo 5. 35minutes of the fire endurance test.



Figure 8. 45minutes of the fire endurance test.

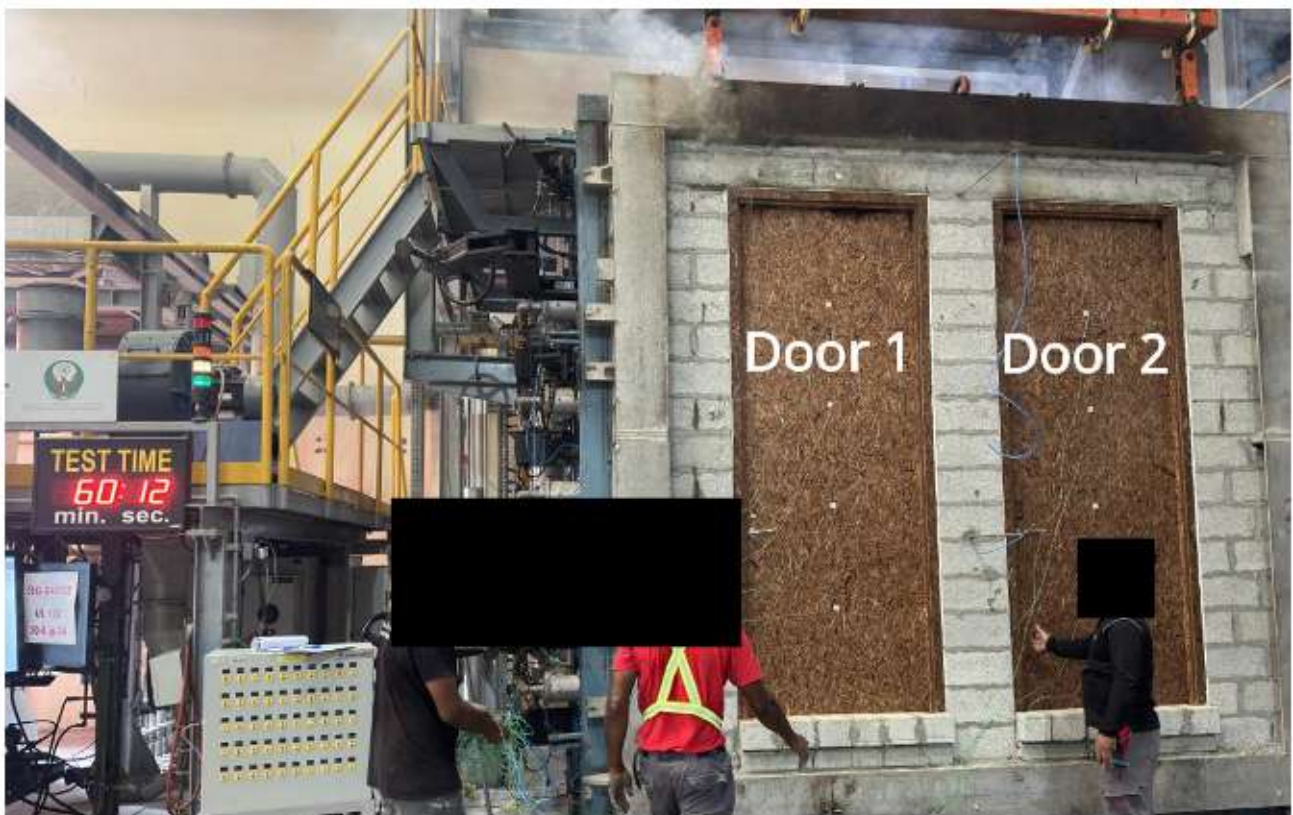


Figure 9. 60minutes and the end of the fire endurance test.



Photo 6. After the Hose Stream Test.

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7.1 6.2 Exposed side view of the test specimen



Photo 7. Before the Fire Endurance test.



Photo 8. End of the Fire Endurance Test and prior to the Hose Stream Test, while on transit.



Figure 10. Prior to the hose stream test.



Photo 9. After the Hose Stream Test.

8 TEST RESULTS

Results of the Fire Endurance and Hose Stream Test for the *"Latched Palm strand board (PSB) Fire Rated Single door"* are presented in Tables 1-13, Figures 1-6, Graphs 1-6, and Photos 1-9, refer only to the construction described in Clause 3 of herein Test Report.

Table 13. Summary of the test results

Performance criteria	Description of the criterion requirements	Time and location of criterion failure		Test result	
		Door 1 (0552-24-01)	Door 2 (0552-24-02)	Door 1	Door 2
Fire Endurance Test	Sustained flaming	No failure	No failure	1 hour	1 hour
	Ignition of the cotton pad	No failure	No failure		
	As per Clause 14 & 15 of UL 10C	No failure	No failure		
Hose Stream Test	Requirements as per Clauses 14 & 15 of UL 10C	No failure	No failure.	The door assembly has complied with the clauses 14 and 15 of UL 10C	The door assembly has complied with the clauses 14 and 15 of UL 10C

Duration of the Fire Endurance Test: 1 hour

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

9 TEST WITNESSES

Test sponsor representative(s) witnessing the test.

Mr. Anselmo Tabadeo

Representative of Abanos Furniture & Decoration Industry L.L.C.

Mr. Rodrigo Candeo
Mr. Haribabu

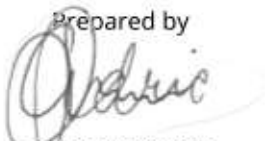
Representative of Desert Board
Representative of Abanos Furniture & Decoration Industry L.L.C.

10 ATTACHMENTS

- Technical documentation No. ABS00062-STD-FR-PSB-124 Rev 03 (09.10.2024)
- Other documents:
 - Handle TDS - 902.24.020
 - Mortice lock TDS - 911.82.163
 - Lock cylinder TDS -
 - Intumescent fire protection kits TDS
 - Lorient fire seal LP2004 TDS
 - BOSS 813+ TDS
 - PS 0704 S silicone rubber gasket TDS
 - Door closer - Devon - 82.216
 - Hinge TDS - 926.43.020
 - Dropseal - Schall-Ex® L-14/35 EK TDS
 - Palm strand board TDS
 - Kleiberit 501 TDS
 - RAR Ritver PW1612 TDS

11 SIGNATORIES

Prepared by



Cedric Montecillo

Fire Resistance Testing Technician

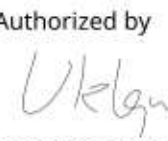
Reviewed by



Subramaniam Shivalingham

Fire Testing Engineer

Authorized by



Dr. Sebastian Ukleja

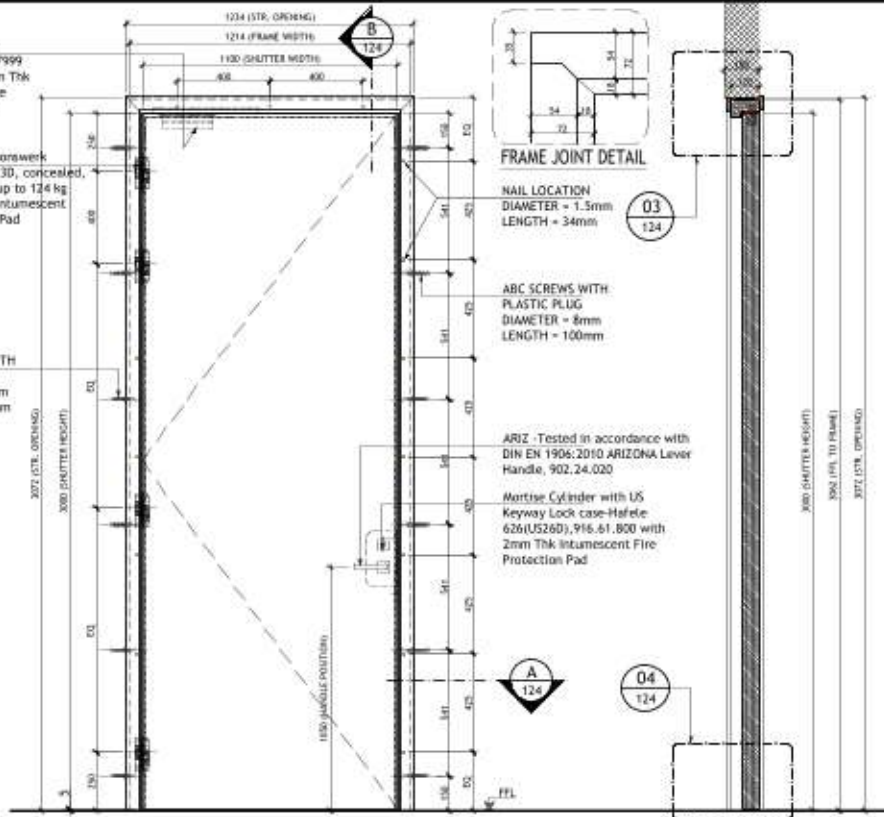
Testing Manager

--END OF REPORT--

Concealed door
closers, (UL) R37999
Devon with 2mm Thk
Intumescent Fire
Protection Pad

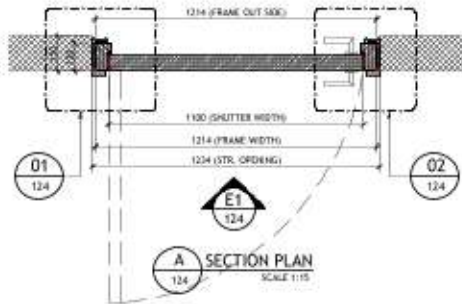
Door hinge, Simonwerk
TECTUS TE 540 3D, concealed,
for flush doors up to 124 kg
with 2mm Thk Intumescent Fire
Protection Pad

ABC SCREWS WITH
PLASTIC PLUG
DIAMETER = 8mm
LENGTH = 100mm



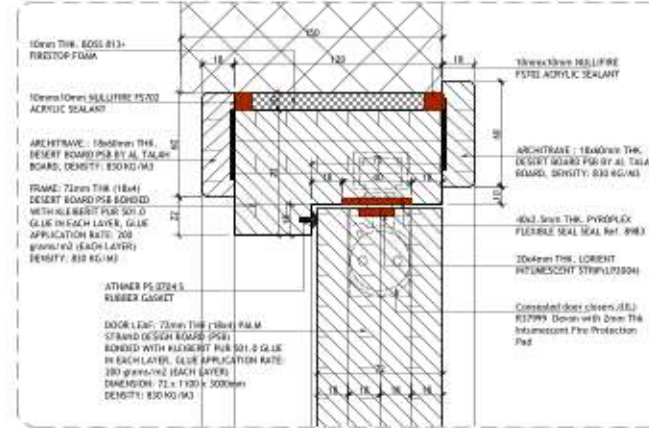
E1 ELEVATION
124
SCALE 1:15

B SECTION
124
SCALE 1:15



A SECTION PLAN
124
SCALE 1:15

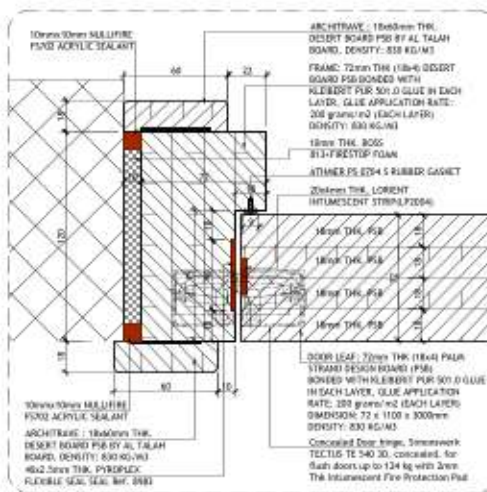
LIN	Article No.	Qty.	Unit	Hardware Description	Image
1	924.17.224	8	nos.	Tectus TE 540 3D Concealed Mortise Hinge size 200mm x 80mm for wood, steel or aluminum frames suitable for door weight up to 120 kg, continuously 3D adjustable, satin nickel look 12	
2	86.216-62	2	nos.	Devon Concealed door closer (UL) R37999	
3	911.82.143	1	each	Mortise Lock case- LMD15, CLASSROOM Function (ANSI F55), meets ANSI A156.13, Grade 1 - Lever Handle in Cylinder	
4	902.24.020	1	set	ARIZ - ARIZONA Lever Handle Set on Rose with Spindle	
5	950.05.494	2	nos.	Automatic drop down seal, L-14/25, 1035mm length, Silver finish	
6	950.15.940	2	nos.	Intumescent kit for drop seal, 3mm	



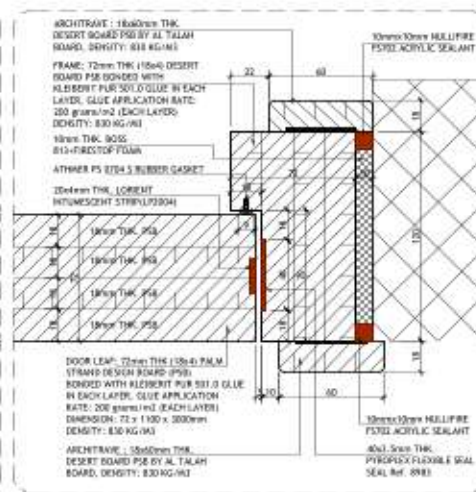
03 SPOT DETAIL
124
SCALE 1:2



04 SPOT DETAIL
124
SCALE 1:2



01 SPOT DETAIL
124
SCALE 1:2



02 SPOT DETAIL
124
SCALE 1:2

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

Rev.	Date	Description	By
01	09.10.24	FOR APPROVAL	SJ
02	10.09.24	FOR APPROVAL	SJ
01	19.08.24	FOR APPROVAL	SJ
00	16.08.24	FOR APPROVAL	SJ

CLIENT
ABANOS

CONSULTANT

MAIN CONTRACTOR

PROJECT
**CERTIFICATION/TEST
REPORT FOR UL**

SUB- CONTRACTOR

ABANOS
DESIGNING FOR UL AND ENEC

DRAWING TITLE
**DESERT BOARD - PSB FIRE RATED
SINGLE LEAF DOOR (1100x3000)
(CONCEALED HINGE & CONCEALED DOOR CLOSER)
EN - 60 Min. FIRE RATED DOOR**

DRAWN BY	CHK.	APPD.	DATE
SJ			16.08.2024

SCALE	DRAWING NO.	REV.
1:15 @ A3	AB500062-STD-FR-PSB-124	03



DesertBoard.
By Al Fakhri Wood Manufacturing Co. Ltd

**WORLD'S
FIRST
WOODEN
BOARD
MADE
FROM
DATE
PALM
WASTE**

ABOUT DESERTBOARD



ABOUT OUR LABS

Desert Board has effectively pledged its reputation as the market leader in the quality of Strand board manufacturing and product innovation. Our labs are equipped with State-of-the-art process control instrumentation, advanced automation, and quality control systems.

With constant strive for success, the Testing Laboratory works with our Research and Development laboratory endlessly to ensure the quality of our product is comparable to the best available in the market at all times.

With the efforts of our laboratories and our management's innovation, we have produced a board that complies with the European Standards EN30:2006 and certified by various local and global entities as a sustainable solution for a better future.



ABOUT OUR PLANT

With special functions and advanced technologies, our plant can be classified as state-of-the-art. Being the first plant in the world that can transform palm waste into functional palm strand boards, we can ensure that we can lead the market and the industry with confidence.

Our plant is certified by ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018, and our processes are certified by the Forest Stewardship Council, Emirates Green Building Council, and a United Nations signatory of the Global Compact initiative and Climate Neutral Now.

Our plant is equipped with high-efficiency wood dust filtration systems, which are installed for the main manufacturing process as well as at various transfer points to avoid dust emissions into the atmosphere. The plant is controlled by a Central Control Room with built-in software and the latest technologies to recycle up to 80% of wood dust generated during the board manufacturing process for energy production.





DesertBoard.
By Al Fard Board Manufacturing Co. Ltd

**WORLD'S
FIRST
WOODEN
BOARD
MADE
FROM
DATE
PALM
WASTE**

PALM STRAND BOARD



PSB

Palm Strand Board

DESCRIPTION

PSB is an Environmentally-friendly wooden board made from palm waste materials, making it a 100% sustainable board suitable for a wide range of applications. PSB Design is made from PSB Structural boards sandwiched between high density fiberboards that provide a smooth finish and increase the board's durability.

These boards were developed to meet the exacting Al Sa'fat Green Building System and Japanese Industrial Standards (JIS) for formaldehyde emissions. This superior grade F also known as Super E0 (SE0) with Formaldehyde Emissions not exceeding 0.05 mg/kg, has formaldehyde levels similar to natural wood, giving you assurance in the best controls available.

APPLICATIONS

PSB is a wood-based panel suitable for furnitures, kitchen cabinets and wooden structures such as wall decors, booths, floors and panelling and many more.

FEATURES



100% Sustainable



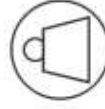
Environmentally Friendly



Zero Emissions



High-Strength & Durable



Load-Bearing Capabilities



Superior Screw Withdrawal



Suitable in Humid Areas



Variation of Finishes



Furnitures



Kitchen Cabinets



Booths & Stands



Panelling





PSB

Palm Strand Board

MEASUREMENTS

PSB comes in various sizes and thickness, the standard size for the board is:

2438 mm x 1219 mm (8 ft. x 4 ft.)



TESTS

PSB has been tested by Internal and Third-Part Laboratories to ensure the quality of the boards.

PROPERTY

TEST UNIT VALUE

Formaldehyde release	EN 717-1	mg/kg	< 0.05
Moisture Content	EN 322	%	3.16
Density	EN 323	kg/m ³	816.4
Modulus Elasticity	EN 310	N/mm ²	3592.50
Tensile Strength Perpendicular to the plane	EN 319	N/mm ²	0.96
Bending Strength	EN 310	N/mm ²	19.55
Thickness Swelling 2 hours	EN 317	%	3.2
Thickness Swelling 24 hours	EN 317	%	7.78
Screw Withdrawal	EN 320	N	1543
Tolerance on Nominal Dimensions (Thickness)	EN 324	mm	± 0.5
Tolerance on Nominal Dimensions (LengthxWidth)	EN 324	mm/m	± 0.2
Tolerance on Nominal Dimensions (Squareness)	EN 324	mm/m	± 0.2
Tolerance on Nominal Dimensions (Edge Straightness)	EN 324	mm/m	± 0.2

CERTIFICATIONS

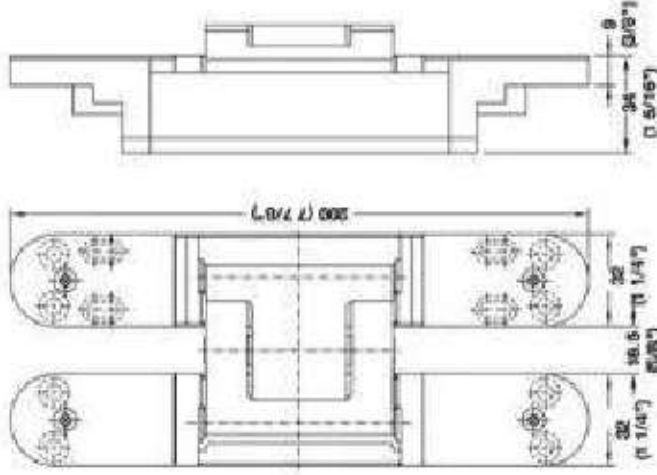
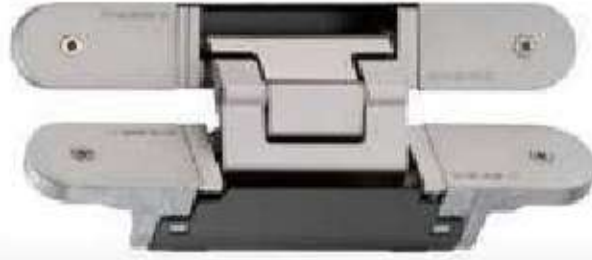
PSB Design has been tested by Dubai Central Laboratory and other 3rd party laboratories. It has been certified by Dubai Municipality as per Al Sa'fat Green Building System and is in compliance with the European Standards EN300:2006, and BS EN 717-1:2004.



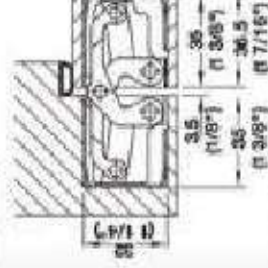
TECTUS

- > Used in door frames made out of hollow metal or wood in flush interior doors
- > Maintenance-free slide bearings
- > Suitable for left and right hand applications
- > UL listed for 20 minute rated fire doors (maximum door size: 4' x 8' for a single door, 8' x 8' for a pair of doors)

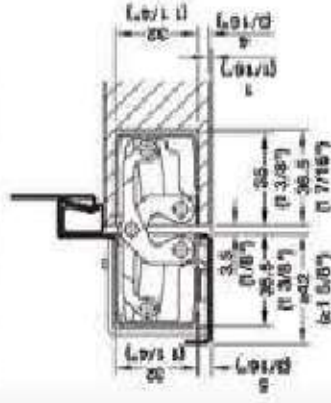
→ TE 540 3D



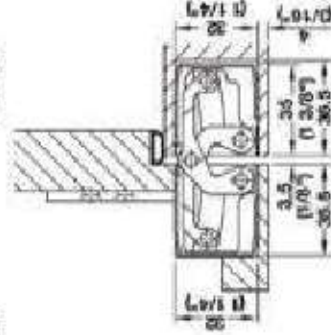
Mounting



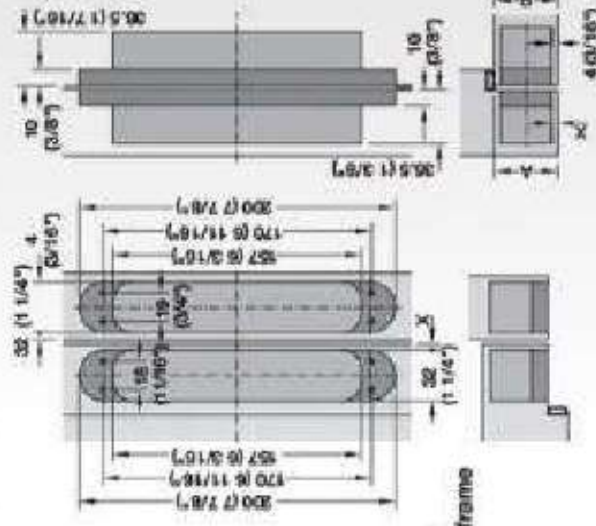
Mounted to a wood door frame



Mounted to a hollow metal frame with a receiver element



Mounted to a wood door jamb together with a mounting plate



Milling template for a wood door frame

Calculation of the milling dimensions:

A = Rabbet depth excluding seal clearance

B = Door thickness

A - B + 3 = Dimension X

The result has to fall between 3 mm (1/8") and maximum 5 mm (3/16").

For hollow metal frame applications X = 5 mm (3/16").

Overhead Concealed Door Closer with track arm - Spring Power 3



86.216



FM 60396
INTERNATIONAL
STANDARDS
This product is
manufactured under
a quality management
system **ISO 9001**.

DATA AND FEATURES

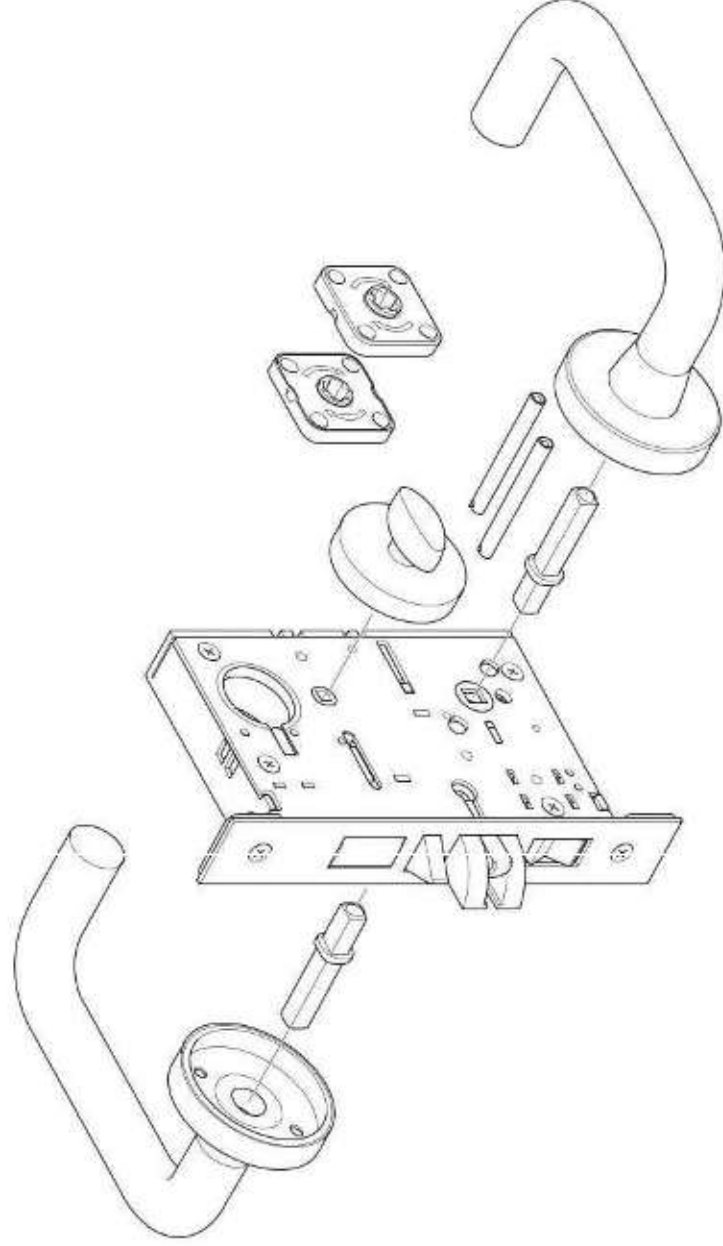
Closing force	Spring strength(EN)	3
Standard doors	950mm 60kg	✓
Body dimension	Length	230
	Width	56
	Thick	32
Arm	Track (standard)	✓
	Track (hold-open)	✓
Rack and pinion		✓
Angle of opening		120°
Sweep speed adjustable		✓
Latching speed adjustable		✓
Non-handed		✓
Guarantee/years		10 years
✓ = yes		

Guarantee

A free replacement ex-works of any closer proved defective by reason either of faulty manufacture or defect in materials.

Standard Finishes:

- 062** Satin Nickel
 - 063** Polished Chrome
 - 021** Silver Anodized
 - 101** PVD
- Other finishes available upon request





An extra heavy duty mortise lockset, designed to surpass the requirements of ANSI A156.13 Grade 1. It will function in excess of 1,000,000 times. It is suitable for frequently used doors in public buildings, commercial buildings, hotels and hospitals.

Features

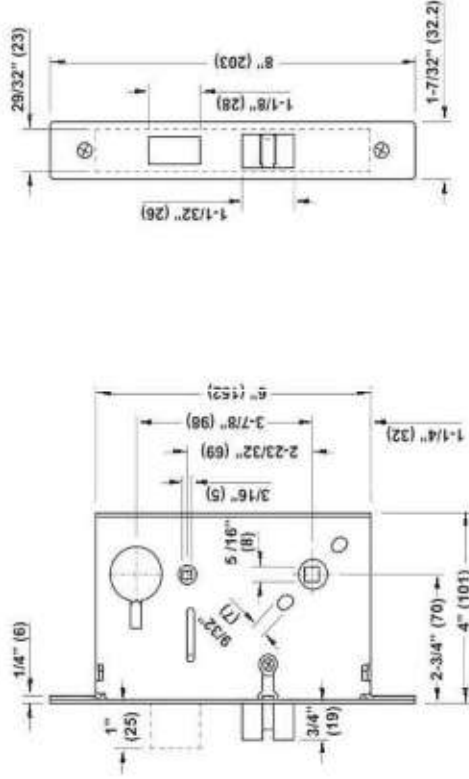
- All bolts are made of Stainless Steel, most working parts inside the case are made of high strength steel alloy.
- Rose and escutcheon are through-bolted. Steps of installation are minimal, fast and easy.

2

- Area of application: For commercial and institutional buildings where the finest mortise locks are required
- Material: Deadbolt and Latchbolt: Stainless Steel
- Finish: 630 (US32D) Stock
- Handling: Field reversible without opening case
- Version: Strike: Curved lip, non-handed (ASA)
Cylinder: Mortise 1-1/8" (29 mm) for sectional trim and 1-1/4" (32 mm) for escutcheon trim
- Latchbolt: 3/4" (19 mm) Throw
- Deadbolt: 1" (25 mm) Throw
- Dimensions: 4 5/16" x 6" x 1" (110 mm x 152 mm x 25 mm)
- Backset: 2 3/4" (70 mm)
- Door thickness: 1 3/8" (35 mm) to 2 1/2" (64 mm)
- Spindle: Breakable to prevent the lock case from unlocking or being damaged
- Door preparation: Conforms to ANSI A 115.1
- Certification: ANSI A156.13, Grade 1 operational and security UL listed for 3-Hour-Fire Rating

Note

Please see cylinder section for masterkeying possibilities. Other finishes are available upon request.



Order reference

For a complete and functional mortise lock, the following components have to be ordered separately.

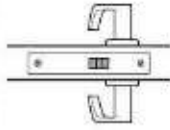
1. Lock case with desired function
2. Lever trim set
3. Mortise Cylinder(s) (if applicable)
4. Doors need to be prepared by using templates supplied

Cylinder section

► AHAS 2.80



Model LMD10

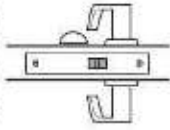


- Functionality: Latchbolt retracted by lever on either side
- Finish: 630 (US32D)

Function	ANSI Code	Cat. No.
Passage	F01	911.82.161

Packing: 1 piece

Model LMD11

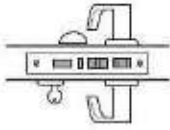


- Functionality: Latchbolt retracted by lever on either side unless outside is locked by thumbturn inside
Operating inside lever or emergency turn outside unlocks outside inside lever always free
- Finish: 630 (US32D)

Function	ANSI Code	Cat. No.
Privacy	F22	911.82.165

Packing: 1 piece

Model LMD13



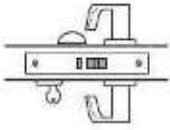
- Functionality: Latchbolt retracted by lever on either side unless outside is locked by toggle switch
Deadbolt operated by key outside or thumbturn inside
Throwing deadbolt automatically locks the outside lever
Auxiliary latch deadlocks latchbolt when door is closed
Inside lever always free
- Finish: 630 (US32D)

AHAS/B 2014, hde-en, 09/12: Dimensional data not binding. We reserve the right to alter specifications without notice.

Function	ANSI Code	Cat. No.
Entrance	F20	911.82.162

Packing: 1 piece

Model LMD14

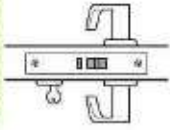


- Functionality: Latchbolt retracted by lever on either side unless outside is locked by thumbturn inside or key
Auxiliary latch deadlocks latchbolt when door is closed
Inside lever always free
- Finish: 630 (US32D)

Function	ANSI Code	Cat. No.
Office	F04	911.82.167

Packing: 1 piece

Model LMD15



- Functionality: Latchbolt retracted by lever on either side unless outside is locked by key
Auxiliary latch deadlocks latchbolt when door is closed
Inside lever always free
- Finish: 630 (US32D)

Function	ANSI Code	Cat. No.
Classroom	F05	911.82.163

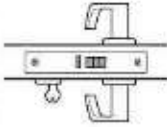
Packing: 1 piece

Cylinder section

► AHAS 2.80



Model LMD18

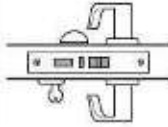


- **Functionality:** Latchbolt retracted by lever inside or key outside
Auxiliary latch deadlocks latchbolt when door is closed
Inside lever always free
- **Finish:** 630 (US32D)

Function	ANSI Code	Cat. No.
Storeroom	F07	911.82.164

Packing: 1 piece

Model LMD22

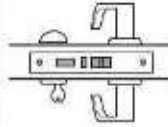


- **Functionality:** Latchbolt retracted by lever on either side
Deadbolt operated by key outside or thumbturn inside
Throwing deadbolt automatically locks the outside lever
When locked, lever inside or key outside retracts deadbolt and latchbolt simultaneously and unlocks outside lever
Inside lever always free
- **Finish:** 630 (US32D)

Function	ANSI Code	Cat. No.
Corridor	F13	911.82.168

Packing: 1 piece

Model LMD26



- **Functionality:** Latchbolt retracted by lever on either side
Deadbolt thrown or retracted by key outside or thumbturn inside
Latchbolt and deadbolt are independent of each other
- **Finish:** 630 (US32D)

Function	ANSI Code	Cat. No.
Dormitory	F21	911.82.169

Packing: 1 piece

Model LMD50

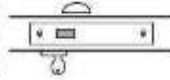


- **Functionality:** Deadbolt thrown or retracted by key outside only
- **Finish:** 630 (US32D)

Function	ANSI Code	Cat. No.
Deadbolt w/o Turn	F18	911.82.171

Packing: 1 piece

Model LMD51



- **Functionality:** Deadbolt thrown or retracted by key outside or thumbturn inside
- **Finish:** 630 (US32D)

Function	ANSI Code	Cat. No.
Deadbolt	F17	911.82.170

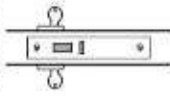
Packing: 1 piece

Cylinder section

► AHAS 2.80



Model LMD52

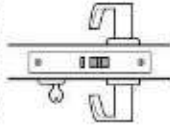


- **Functionality:** Key outside extends/retracts deadbolt
Key inside extends/retracts deadbolt
(available only in section trim)

Function	ANSI Code	Cat. No.
Deadbolt Double Cylinder	F 16	911.82.172

Packing: 1 piece

Model LMD90

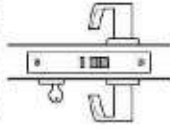


- **Functionality:** Key outside retracts latchbolt
Latchbolt operated by lever from inside
Auxiliary latch deadlocks latchbolt
Fail secure: latchbolt operated by lever from outside when electrically unlocked
Accept 12 V DC at 0.7 A, 12 V AC at 0.7 A, 24 V DC at 0.35 A and 24 V AC at 0.35 A
Furnished with 6" wire leads
Request to exit available
ANSI does not list this function

Function	ANSI Code	Cat. No.
Electrified Storeroom (Fail secure)	N/A	911.82.173

Packing: 1 piece

Model LMD91

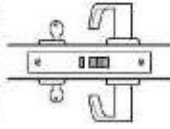


- **Functionality:** Key outside retracts latchbolt
Latchbolt operated by lever from inside
Auxiliary latch deadlocks latchbolt
Fail safe: latchbolt operated by lever from outside unless electrically locked
Accept 12 V DC at 0.7 A, 12 V AC at 0.7 A, 24 V DC at 0.35 A and 24 V AC at 0.35 A
Furnished with 6" wire leads
Request to exit available
ANSI does not list this function

Function	ANSI Code	Cat. No.
Electrified Storeroom (Fail safe)	N/A	911.82.174

Packing: 1 piece

Model LMD92

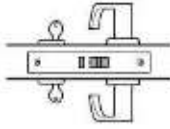


- **Functionality:** Outside and inside lever unlocked electrically
Latchbolt retracted by key on either side
Switch or power failure keeps inside and outside knob/lever locked
Auxiliary latch deadlocks latchbolt when door is closed
Accept 12 V DC at 0.7 A, 12 V AC at 0.7 A, 24 V DC at 0.35 A and 24 V AC at 0.35 A
ANSI does not list this function

Function	ANSI Code	Cat. No.
Electrically unlocked both sides (Fail secure)	N/A	911.82.176

Packing: 1 piece

Model LMD93

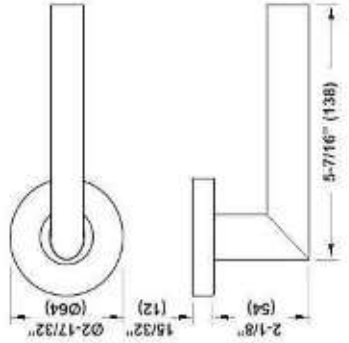


- **Functionality:** Outside and inside lever continually locked electrically
Latchbolt retracted by key on either side
Switch or power failure allows outside and inside knob/lever to retract latchbolt
Auxiliary latch deadlocks latchbolt when door is closed
Accept 12 V DC at 0.7 A, 12 V AC at 0.7 A, 24 V DC at 0.35 A and 24 V AC at 0.35 A
ANSI does not list this function

Function	ANSI Code	Cat. No.
Electrically locked both sides (Fail safe)	N/A	911.82.175

Packing: 1 piece

Arizona



2

- Material: Stainless steel grade 304
- Finish: 630 (US32D)

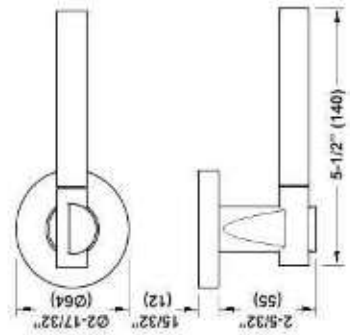
Lever Handle	Cat. No.
Packing: 1 pair	902.24.020

Supplied with

- 1 Pair of lever handles on rose
- 1 Spindle 8 mm

Mortise Locks

Arkansas



- Material: Stainless steel grade 304
- Finish: 630 (US32D)

Lever Handle	Cat. No.
Packing: 1 pair	902.24.030

Supplied with

- 1 Pair of lever handles on rose
- 1 Spindle 8 mm



Schall-Ex® L-14/35 EK

1-935

- / drop seal with common groove dimension
- / parallel drop 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

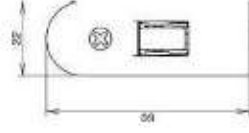


TECHNICAL DATA

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

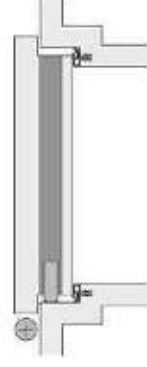
DIMENSIONS

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.

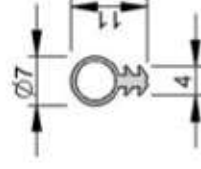
PS 0704 S

- / door stop-rebated bubble compression seal
- / large tolerance compensation
- / suitable for sound insulation
- / suitable for smoke sealing



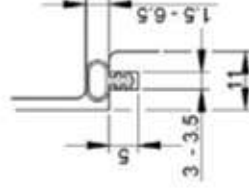
TECHNICAL DATA

Application	timber frame rebates
Gasket material	silicone, self-extinguishing
Working temperature range	-40°C to +180°C



DIMENSIONS

Width x height	7 x 11 mm
Fitting tolerance range	1.5 - 6.5 mm
Standard lengths	100m coil



FIXING

Fixing	into a groove in the door stop
--------	--------------------------------

PERFORMANCE & CERTIFICATES

Fire	EN1634-1*
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COLORS

COLORS	ART.NO.
Black	P160057
Brown	P160056
White	P160065
Grey	P160080

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

Application:	Fire resisting timber doorset
Fire resistance period:	30 to 60 - 90* minutes
Insulation integrity:	Integrity
Test standard:	BS 476: Part 22
Approval type:	Certifire CF355

Flexible Seals – Fire Only

PRODUCT PROFILES:



Flexible
NB All seals form an
integral DPO

Pyroplex® Flexible Seals provide a permanent seal for fire rated timber and metal door edges and frames. They are suitable for rebates in timber door leafs or frames or the surface of metal door leafs or frames. Pyroplex® Flexible Seals are ideal for new build and retro-fit applications. They are supplied with a coloured polymer cover in a continuous coil to minimise wastage and are quick and easy to fit as no special tools are required. They are supplied with a high grade acrylic self-adhesive tape backing for ease of application.

Pyroplex® Flexible Seals are tested to BS 476: Part 22 and other international standards and are compliant with the requirements given in Certifire TS35.

Certifire Certificate No. CF355 (Available on our website to download at www.pyroplex.com)

FIELD OF APPLICATION

Pyroplex® Flexible Seals have been specifically designed for use in the following applications:

- Surface mounted applications
- For use in single and double action timber doors
- For use in composite doors
- Insulated and non-insulated steel doors and frame
- New build and retro-fit applications

PRODUCT FEATURES

- Pyroplex® intumescent material is high-pressure forming and multi-directional
- Supplied with a high grade self-adhesive backing for ease of application and installation
- Supplied on continuous reels for dispensing applications
- Requires no additional coatings to extend its long-term durability
- Quick and easy to fit with no special tools required
- Pyroplex® intumescent material is totally unaffected by water, robust, 'non-flaking' and difficult to tear
- Polymer cover enhances appearance and is available in six standard colours – Black, White, Brown, Grey, Red and Cream
- Seals can be supplied in a fully flexible condition, refer to Pyroplex® for further information

PRODUCT DATA

Part No.	Profile Dimensions (W x D mm)	Metres on Coil	Indicative Fire Resistance	
			30 Min.	60 - 90* Min.
8979	10 x 2.5	150m	✓	–
8989	10 x 4.0	150m	✓	–
8980	15 x 2.5	150m	✓	–
30020	15 x 4.0	100m	✓	–
8981	20 x 2.5	100m	–	✓
30012	20 x 4.0	75m	–	✓
8988	25 x 2.5	100m	–	✓
8986	30 x 2.5	75m	–	✓
8983	40 x 2.5	50m	–	–
30047	40 x 4.0	50 x 2.3m lengths 2m lengths	–	–
300501	24 x 2.0	2m lengths	–	✓
301601	58 x 2.0	2m lengths	–	✓
3018901	60 x 2.6	40m	–	✓

✓ = primary test evidence available. *Depending upon end use application.

INSTALLATION INSTRUCTIONS

1. Clean the substrate to remove surface oils, failure to remove surface greases may result in delamination or poor adhesion to the substrate.
2. Remove the self-adhesive backing liner from the intumescent and apply the product to the substrate.
3. To achieve excellent adhesion, seals must be applied to clean, dry surfaces at temperatures between +5°C and +40°C.

QUALITY APPROVAL

Pyroplex Limited have a Quality Management System that meets the requirements of ISO 9001 and an Environmental Management System that meets the requirements of ISO 14001, both are independently verified by BSI Quality Assurance under Certificate Numbers FM 10371 and EMS 637894. Copies of these certificates are available on our website to download at www.pyroplex.com.

OTHER INFORMATION

The information contained herein is based upon the present state of our knowledge. Recipients of Pyroplex® products must take responsibility for observing existing laws and regulations.

Due to our policy of continuous improvement, Pyroplex Limited reserves the right to amend specifications without prior notice.

Page 1 of 2

TECHNICAL DATA:

PRODUCT TESTING

The Pyroplex® range of Flexible Seals have been extensively tested in the UK, Europe and worldwide, to national and international standards. Tested to BS 476 Part 22 and other international standards. Compliant with the requirements given in Certifire TS35—Certificate No. CF355.

TECHNICAL DATA

Chemical composition: The active element is high-pressure forming, multi-directional expandable graphite contained within a high-performance durable polymer.

Adhesive performance: Adhesive type: High-performance modified acrylic

Thickness: 205 microns.

Temperature resistance: +200°C short term, +100°C long term.

Tensile strength: >30N/15mm.

Elongation: 50%.

Humidity resistance: Very good.

Solvent resistance: Very good.

Ageing resistance: Very good.

Application resistance: Very good.

Application temperature: To be confirmed.

MAINTENANCE AND INSTALLATION RECORDS

As this product is not subject to routine and replacement programmes, Pyroplex Limited recommend that all firestopping materials are checked regularly to ensure that the product remains integral. Replace and fit any damaged components to reinstate the fire resistance of the timber door set.

PRODUCT GUARANTEE AND TRACEABILITY

Providing the product is installed in accordance with the requirements of the guidance document, the product is guaranteed for a period of 10 years. All Pyroplex® products are identified with a unique reference number for traceability purposes.

TECHNICAL SUPPORT AND GUIDANCE

Should you require any further information regarding this product, please contact Pyroplex Limited or visit our website, www.pyroplex.com

MATERIAL SAFETY DATA:

COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Thermoplastic element composition containing intercalated graphite in a synthetic compound with the addition of fillers and process oils. Encapsulated in an elastomeric polymer for aesthetic finish. Supplied with an acrylic self-adhesive backing.

POSSIBLE HAZARDS

Principle hazards: Not subject to decree of hazardous substances.

Critical hazard to man and environment: Not applicable.

FIRST AID MEASURES

On skin contact: Not applicable.

On contact with eyes: Not applicable.

On ingestion: Not applicable.

If inhaled: Not applicable.

FIRE FIGHTING MEASURES

Pyroplex® intumescent material is self-extinguishing.

Suitable extinguishing media: Water, foam, powders and dry extinguishing media.

Special protective equipment: Suitable forms of PPE (personal protective equipment). Avoid inhalation of smoke or fumes.

In the event of fire, contact the appropriate emergency services for assistance.

ACCIDENTAL RELEASE MEASURES

Personal precaution: Not applicable.

Environmental precaution: Not applicable.

Methods for cleaning up: No special measures necessary.

HANDLING AND STORAGE

Handling: No special requirements.

Storage: Store in a cool, dry place (not above +35°C) and ensure sufficient ventilation.

EXPOSURE CONTROLS AND PERSONAL PROTECTION

Respiratory protection: None normally required.

Hand protection: Not applicable.

PHYSICAL AND CHEMICAL PROPERTIES

Form	Solid
Colour	All colours
Odour	Acidic

STABILITY AND REACTIVITY

Conditions to be avoided: Thermal decomposition above +300°C.

Hazardous decomposition products: Thermal decomposition, fumes contain Hydrogen Chloride. However, the activated graphite is effective at removing aromatic particles from smoke emissions.

TOXICOLOGICAL INFORMATION

Acute toxicity: Not applicable in solid state.

ECOLOGICAL INFORMATION

General advice: Observe the legal provisions regarding the prevention of ground water and surface water as well as air. Do not discharge product into natural waters without pre-treatment.

DISPOSAL CONSIDERATIONS

Recommendations: Disposal by means in accordance with local regulations e.g. suitable deposition.

TRANSPORT INFORMATION

Transport hazards: No regulations apply for the transport of this material. Not classified as hazardous for road, rail, sea or air transport.

REGULATORY INFORMATION

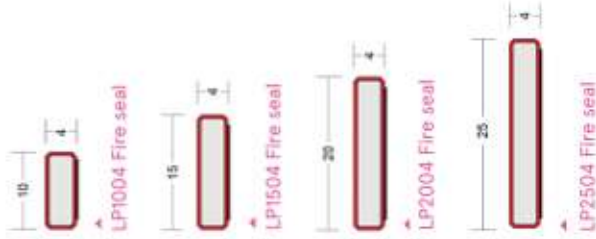
Labelling according to EEC directives	
National legislation/regulation	Not applicable
VoF classifications	None
Water hazard class	Not applicable

FIRE SEALS

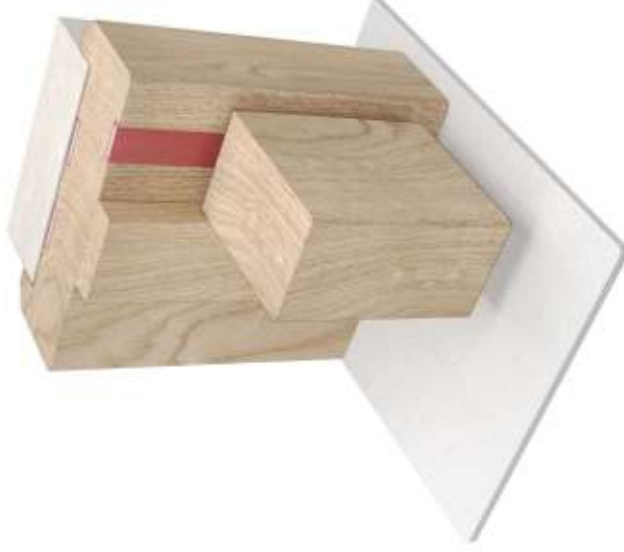
FIRE SEALS

LP1004, LP1504, LP2004, LP2504

Our intumescent fire door seals offer fire protection where no smoke sealing is required. Combine a fire seal with a Batwing® seal for acoustic + smoke containment. Available in a choice of sizes to cover 30 + 60 minute applications, the fire seal also includes integral antimicrobial protection.



ACOUSTIC, SMOKE + FIRE SEALS



Fire seal

SYSTEM SPECIFICATIONS

Test evidence

- ▶ Fire: BS EN 1634-1: 2008.
- ▶ Fire: BS 476-22: 1987.

Performance

- ▶ Protects against fire.
- ▶ Integral antimicrobial protection.

Size

- ▶ 10 x 4mm.
- ▶ 15 x 4mm.
- ▶ 20 x 4mm.
- ▶ 25 x 4mm.
- ▶ Other sizes available, please ask for details.

Location

- ▶ Single and double leaf doors.

Use with

- ▶ Smoke seals and any architectural seals.

Min/max gap size

- ▶ 3mm/4mm.

Seal material

- ▶ PVC encased sodium silicate.

Standard lengths

- ▶ 1m and 2.1m.
- ▶ Other lengths to special order.

Fixing

- ▶ Heavy duty self-adhesive backing tape.

Finishes

- ▶ Available in a range of standard colours, plus woodgrain and metallic finishes for superior aesthetics.

Accreditations



BOSS 813+

Revision: 10/06/2020

Page 1 from 2

Technical data

Basis	Polyurethane
Consistency	Stable foam, thixotropic
Curing system	Moisture curing
Skin Formation (FEICA TM 1014)	9,5 min
Cutting Time (FEICA TM 1005)	50 min
Density**	Ca. 40 kg/m ³
Thermal conductivity (λ) (EN 12667)	0,033 W/m.K
Box Yield (FEICA TM 1003)	750 ml yields ca. 34 l of foam
Joint Yield (FEICA TM 1002)	750 ml yields ca. 18 m of foam
Shrinkage after curing (FEICA TM 1004)	< 1 %
Expansion after curing (FEICA TM 1004)	< 1 %
Compressive strength (FEICA TM 1011)	Ca. 70 kPa
Shear strength (FEICA TM 1012)	Ca. 59 kPa
Tensile Strength (FEICA TM 1018)	Ca. 134 kPa
Elongation at Fmax (FEICA TM 1018)	Ca. 14,2 %
Temperature resistance**	-40 °C till +90 °C (cured)

** This information relates to fully cured product.

Soudal NV uses test methods approved by FEICA designed to deliver transparent and reproducible test results, ensuring customers have an accurate representation of product performance. FEICA OCF test methods are available at: <http://www.feica.com/our-industry/foam-technology-ocf>. FEICA is a multinational association representing the European adhesive and sealant industry, including one-component foam manufacturers. Further information at: www.feica.eu

Product description

Boss 813 FR is a one-component, self-expanding, ready to use PU-foam, which contains HCFC- and CFC-free propellants who are not harmful for the ozonlayer. Boss 813 FR is a PU-foam with fire retardant characteristics according to the European standard EN 1366-4.

- As part of the 'Soudal Fire Range'

- assortment for penetration seals and joints.
- Sealing of all openings in roof constructions.
- Apply of an acoustic baffle
- All foam applications in static joints.

Packaging

Colour: pink

Packaging: 750 ml aerosol (net)

- Fire resistant in a joint (EN 1366-4)
- High filling capacity
- Good adhesion on all surfaces (except PE, PP and PTFE).

Shelf life

15 months unopened and stored in dry and cool conditions (Between 5 and 25 °C). Upright storage is recommended.

- High insulation value, thermal and acoustic
- Very good bonding properties.
- Not UV-resistant

Applications

- Installation of fireproof doors and windows.
- Sealing of fire retardant joints in walls and ceiling.

Remark: This technical data sheet replaces all previous versions. The directives contained in this documentation are the result of our experiments and of our experience and have been submitted in good faith. Because of the diversity of the materials and substrates and the great number of possible applications which are out of our control, we cannot accept any responsibility for the results obtained. Since the design, the quality of the substrate and processing conditions are beyond our control, no liability under this publication is accepted. In every case it is recommended to carry out preliminary experiments. Soudal reserves the right to modify products without prior notice.

Soudal NV

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www.soudal.com

Boss 813 FR

Revision: 10/06/2020

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Application method

Shake the aerosol can for at least 20 seconds. Put the adapter on the valve. Moisten surfaces with a water sprayer prior to application. For non-conventional substrates a preliminary adhesion test is recommended. Remove pressure from the applicator to stop. Fill holes and cavities for 1/3, as the foam will expand. Repeat shaking regularly during application. If you have to work in layers repeat moistening after each layer. Fresh foam can be removed using Soudal Gun & Foamcleaner or acetone. Cured foam can only be removed mechanically or with Soudal PU-Remover.

Can temperature: +5 °C - 30 °C

Ambient temperature: +5 °C - 30 °C.

Surface temperature: +5 °C - 35 °C

Health- and Safety Recommendations

Take the usual labour hygiene into account. Always wear gloves and goggles. Remove cured foam mechanically. Never burn away. Consult label and material safety data sheet for more information. When vaporizing (for example with a compressor), additional security measures will be required. Use only in well ventilated areas.

Standards and certificates

- Tested according to standard EN 1366-4 for fire-resistant jointing
- Classification report according to EN 13501-2 by Warrington Exova (report nr. 19660B) and in combination with fire-resistant sealants (19660C)

Remark: This technical data sheet replaces all previous versions. The directives contained in this documentation are the result of our experiments and of our experience and have been submitted in good faith. Because of the diversity of the materials and substrates and the great number of possible applications which are out of our control, we cannot accept any responsibility for the results obtained. Since the design, the quality of the substrate and processing conditions are beyond our control, no liability under this publication is accepted. In every case it is recommended to carry out preliminary experiments. Soudal reserves the right to modify products without prior notice.

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www.soudal.com

CI/SFB	(29) (k2)
CAW P10	
Unclassified JP101.58114	

Product Information

Description

FS702 Intumastic is a water-based acrylic sealant which cures to give a firm but flexible fire seal. Suitable for use in various construction joints offering up to 30% movement capability whilst providing an excellent acoustic and air seal.

FS702 is suited for use around non-combustible services, cables, rock fibre insulated non-combustible pipes, using a minimum depth of 25 mm. FS702 has excellent adhesive qualities and can also be used for the bonding and pointing of joints and service penetrations in conjunction with FB750 Intubatt system.

Usage / Purpose

FS702 is suitable for a variety of applications:

- Static & movement linear joints (masonry/flexible wall to masonry/rigid wall/rigid floor/flexible wall)
- Window & door joints (masonry to timber/steel)
- FB750 to flexible wall/rigid wall/rigid floor
- Cold smoke seal
- Service penetrations sealing: copper & steel pipes, cable bundles / trays / ladders (with and without FI025 Intuflex Insulation Wrap)
- FS702 is also suitable for service movement joints (consult Technical Services).

Traceability & Product Identification

- Nullifire is bringing unique identification technologies to the market, offering architects, specifiers, main contractors, and applicators guaranteed traceability of product on-site. Our traceability technologies are not visible to the naked eye, and do not affect performance or product aesthetics.
- FS702 features Optifire technology, a unique UV technology, activated by exposing the products surface to a UV light source, which offers easy & instant product identification (white colour only).

- FS702 also features Optifire+, a unique pigment technology, visible only with a specific Nullifire detector : Optifire+ offers lifetime identification, and remains traceable even after a fire.

Colours

White.

Grey is available on request (may be subject to minimum order quantities).

Packaging

Gun Grade:

310 ml cartridges (12 per box/25 per box)

600 ml sausages (12 per box)

400 ml sausages (15 per box)

Trowel Grade: 5 litre bucket

Availability

Direct from Tremco CPG UK Limited (see details on this TDS).

Usage Guidelines

Always read SDS, pre-application guidance and relevant application detail prior to application. Ensure the latest documents are downloaded prior to every project commencement.

Protective Equipment

Use in well ventilated conditions and ensure all recommended protective equipment is worn during handling & use of this product. For full recommendation, refer to safety data sheet.

Necessary Tools

- Sealant caulking gun
- Sealant profiling tool/spatula
- Masking tape (if decorative finish is required to surrounding substrates)

Preparation

- All surfaces must be clean and sound, free from dirt, grease and other contamination.
- Wood, plaster and brick may be damp but not running wet.
- Porous or high gloss surfaces require priming prior to application.
- If a clean line is required on adjoining substrates, masking tape should be used.
- Check specification is suitable for movement, fire rating and gap size required.

Nullifire
Smart Protection

FS702

**Intumastic
Fire Resistant
Acrylic Sealant**



Key Benefits Summary

- Up to 4 hours fire resistance
- Tested to EN 1366-4 and EN 1366-3
- Up to 30% movement capability (during fire test)
- Suitable for flexible walls and rigid walls & floors
- Used for sealing FB750 Intubatt
- Acoustics up to 55 dB
- Air seal up to 2,000 Pa
- Optifire & Optifire+ unique traceability identifiers



This product is certified to applicable European (EN) standards and UL-EU Mark source requirements. CCR7, N° UL-EU-10089-CPG



ETA-115 Unifire Joints
210010 Penetration



210002 Unifire Joints
220084 Penetration

up to
240
mins

FS702

Intumastic Fire Resistant Acrylic Sealant

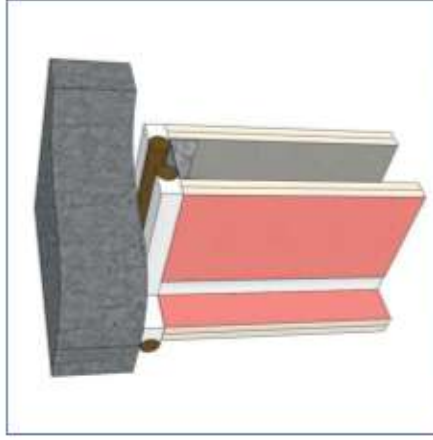
Application

- Insert required backing material (refer to performance on backing materials), oversized to joint width to ensure stability, to provide correct depth of seal.
- A light water spray will aid adhesion if a rock mineral fibre backer has been applied.
- Using a sharp knife, cut nozzle of cartridge to bead size and angle required.
- Gun sealant into gap to required depth by applying an even pressure to the trigger.
- Work and tool to a smooth finish immediately with a wet profiling tool or spatula.

Important Information

- Do not use around CPVC pipes ; for this specific application, please use FS719 HP Blue for CPVC.
- If used around Pegler X-Press Carbon Steel pipes, the pipe manufacturer should be consulted, and their recommendations followed.

Typical Details



FS702 Intumastic plasterboard to concrete linear gap seal with PE backer rod: EI120

Coverage

To determine quantity of sealant required, calculate as following example:

$$\frac{\text{Gap Width (mm)} \times \text{Depth (mm)} \times \text{Total Length (m)}}{\text{Volume of Cartridge (ml)}} = \text{N}^{\circ} \text{ of cartridges}$$

For further guidance on application methods, and material requirements, please contact Tremco CPG UK Limited Technical Services Department.

Cleaning

Immediately remove all excess sealant and masking tape before cure. Clean tools in warm water. Cured sealant can only be removed mechanically.

Health & Safety Precautions

Safety data sheet must be read and understood before use.

Nullifire

Smart Protection

Technical Service

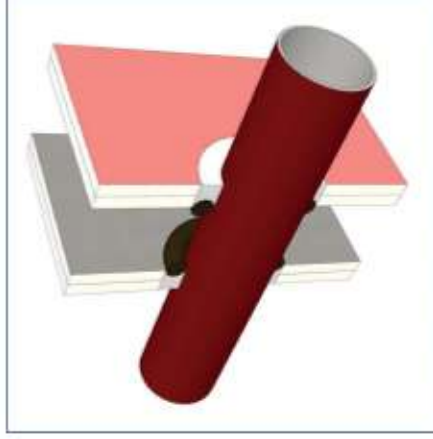
Tremco CPG UK Limited has a team of experienced Technical Sales Representatives who provide assistance in the selection and specification of products. For more detailed information, service and advice, please call Customer Services on 01942 251400.

Guarantee / Warranty

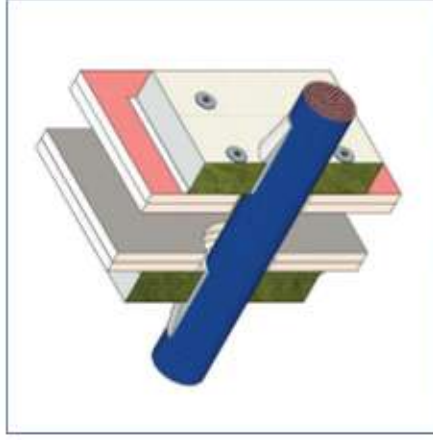
Tremco CPG UK Limited products are manufactured to rigid standards of quality. Any product which has been applied (a) in accordance with Tremco CPG UK Limited written instructions and (b) in any application recommended by Tremco CPG UK Limited, but which is proved to be defective, will be replaced free of charge.

No liability can be accepted for the information provided in this leaflet although it is published in good faith and believed to be correct.

Tremco CPG UK Limited reserves the right to alter product specifications without prior notice, in line with Company policy of continuous development and improvement.



FS702 Intumastic seal for non-combustible pipe penetration through drywall: EI120 EI30 (EI120 can be achieved with FI025 Intuflex)



FB750 Intubatt Pattress Fit + FS702 Intumastic seal & bond for cable penetration through drywall: EI120

up to
240
mins

FS702

Intumastic Fire Resistant Acrylic Sealant

Nullifire
Smart Protection

Technical information

Property	Test Method	Result
Composition		Water based acrylic sealant
Acoustic Rating	BS EN ISO 10140-2:2010	up to 55 dB
Air Permeability	BS EN ISO 1023:2	Air tight up to 2,000 Pa
Solids Content		78% to 82%
pH Value		8.2 to 9.5
Specific Gravity		1.45 - 1.55
Viscosity		Thixotropic
Shore A Hardness		~ 30
Touch Dry	at 20°C	30 minutes
Cure Rate	at 20°C	1 mm/day
Maximum Continuous Service Temperature		70°C - above this temperature discolouration may occur.
Storage	Store in dry conditions between +5°C and +40°C. Product may be left for short periods (not exceeding 72 hours) at temperatures as low as -5°C. Allow product to defrost for 24 hours at +10°C before use.	
Shelf Life	36 months when stored as recommended in original unopened containers.	

Backing Material

This section relates to the change of material used to back a seal or sealant as part of a sealing system for apertures for penetrations of multiple services and linear joint seals. Backing material may not be omitted unless full fill is achieved.

Backing Material	Effect	Comment
Polyethylene / Polyurethane Rod	= or +	May be replaced by mineral wool
Glass Wool	= or +	May be replaced by stone wool or ceramic wool
Stone Wool	= or +	May be replaced by ceramic wool
Ceramic Wool (including ceramic alternatives)	=	May only be replaced by alternative material of equivalent material properties, i.e. density, thermal conductivity, melting point, shrinking, reaction to fire classification - for example alkaline earth silicate fibres
Increase in backing material depth	+	Acceptable for class A1 and A2 materials.
Decrease in backing material depth	-	Not acceptable.

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).



Bonding in Shipbuilding
(according to IMO FTPC Part 5 & Part 2/
Approval per See8G 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 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 (WMT 91) and B4 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 dimatised, 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	6-70 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

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

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.