



# TEST REPORT

## FL90 Composite Cover BS EN124 Class E600 Test

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**Report by:**

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**Date test carried out:**

12<sup>th</sup> October 2021

**Customer name:**

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## Clarifying Statements:

1. The results reported have been performed in accordance with the test requirements agreed by the customer (Fibrelite Ltd.) and laid down in the new BS EN 124-1: 2015 standard along with the composite section EN 124-5.
2. This report does not include or imply any expert opinions as to the serviceability of the sample tested or their suitability for a specific purpose.
3. The submitter disclaims any liability of any kind for any damage whatsoever resulting from the use of either data in the files or the attached values of the test results reported.
4. The report may not be reproduced other than in full, except with the prior written consent of the Engineering Dept., Lancaster University.
5. All testing has been carried out in within the Engineering Department, Gillow Ave., Lancaster University, Bailrigg, Lancaster LA1 4YW.
6. This report applies only to those items and/or materials that have been tested and reported on herein. No inference shall be made to similar test items or materials/ samples.

## **Cover**

The composite cover supplied is a square FL90 and came complete with an aluminium frame. (Photo.1)

For safety and to support the frame better, a support frame made from 100mm x 100mm steel box section was placed around the frame.



Photo.1

## **Test Rig**

The test rig consists of a 'giant mecano' frame bolted to the floor and supporting twin Enerpac 60 ton hydraulic cylinders. (Photo.3)

The frame was supported on steel channels and plates with shims to pack and level.

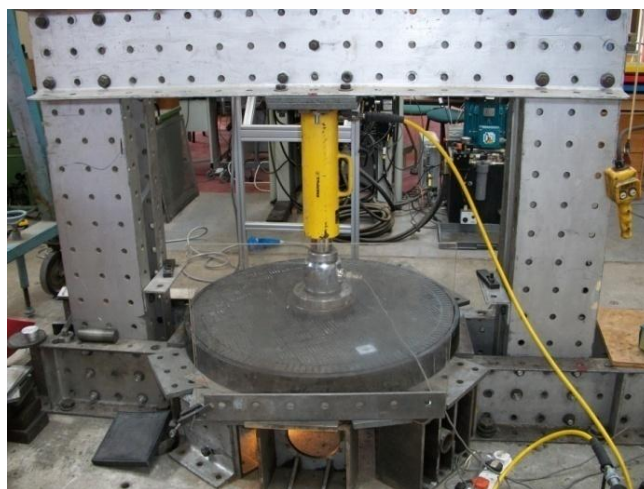


Photo.3



## **Test**

The tests were carried out in accordance with the EN 124:2015 standard for:

- Permanent Set – Clause 8.2
- Load Bearing Capacity – Clause 8.3

The load was applied to the cover through a 250mm diameter by 45mm thick steel block with a 250mm diameter by 10mm rubber pad between the block and cover.

### **Permanent Set Test**

Measurement of permanent set shall be made on the upper-side of the cover in the same place as the applied load at the longest dimension which can be inscribed within the cover through the centre point of the load application. The measurement device shall be positioned as close as possible to the centre point of the load application and the seating of the measuring device support as close as possible to the edge of the cover but not exceeding 10mm from the edge.

An initial reading is to be taken at the geometric centre of the cover before the first load or any preloading has taken place.

The load is then to be applied at a rate of 1kN/s to 5kN/s up to 2/3 of the test load. This procedure is to be carried out five times without significant disruption.

A final deflection reading shall then be taken and the permanent set determined as the difference of the measured readings between the first and fifth readings.

## **Results**

### **Permanent set test**

Initial Reading	0.00mm
Reading after 5 cycles	0.21mm
<b>Permanent Set</b>	<b>0.21mm</b>

Permissible permanent set for a F900 test is  $\frac{CO}{300} = 900/300 = 3.00\text{mm}$

**Therefore cover passes the permanent set test.**

### **Load Bearing Capacity Test**

Immediately after the permanent set test the panel shall be loaded up to the test load at a rate of 1kN/s to 5kN/s.

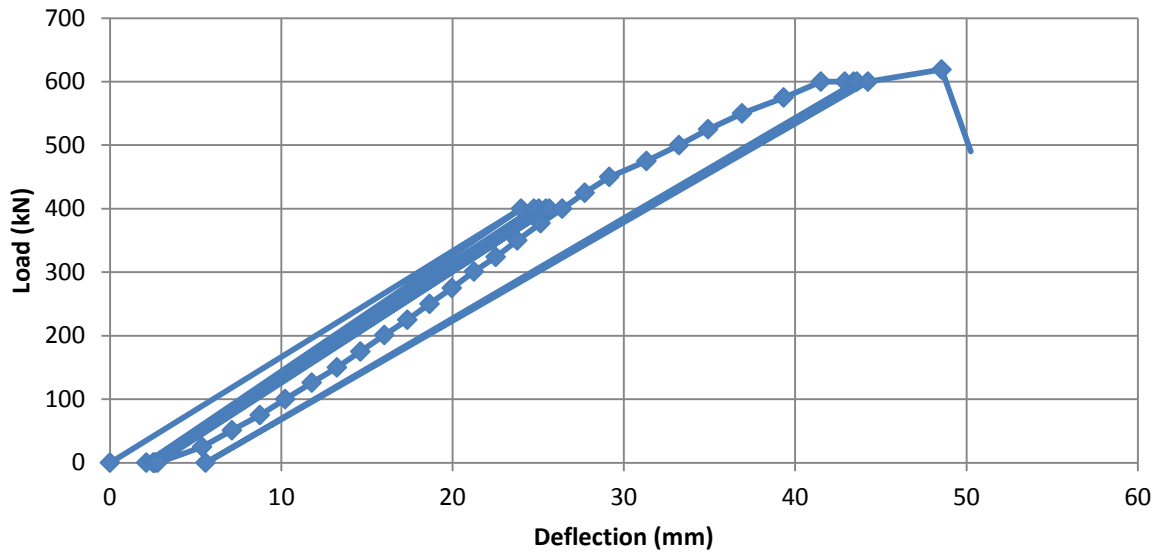
The test load shall then be maintained for  $30_{-0}^{+2}$  seconds.

## **Results**

**The cover held the test load of 600kN for the required 30 seconds with no visible signs of damage, so therefore passed the BS EN124 Class E600 Load Bearing Test.**

Load (kN)	Deflection (mm)	Remarks
0	0	
400	24.00	
0	2.12	
400	24.75	
0	2.52	
400	25.04	
0	2.57	
400	25.45	
0	2.65	
400	25.65	
0	2.78	
25	5.38	
51	7.12	
75	8.75	
100	10.23	
126	11.78	
150	13.25	
175	14.62	
201	16.02	
225	17.36	
250	18.66	
275	19.96	
301	21.25	
324	22.52	
350	23.78	
377	25.14	
400	26.40	
425	27.72	
450	29.15	
475	31.32	
500	33.22	
525	34.92	
550	36.90	
575	39.33	
600	41.50	
600 (10 seconds)	42.90	
600 (20 seconds)	43.42	
600 (30 seconds)	43.61	
0	5.58	
600	44.25	
619	48.55	

### FL90 EN124 E600 Test



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