



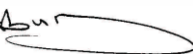
# TEST REPORT

**FS12-60-2-LD Trench Panel**  
**BS EN124 B125 Test**  
**Span - 205mm**

Document reference number - FIB-FS12-60-2-LD-B125-07-12-16

**Report by:**

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M. A. Salisbury 

**Date test carried out:**

7<sup>th</sup> December 2016

**Customer name:**

Fibrelite Composites Ltd.  
Snaygill Industrial Estate,  
Keighley Road,  
Skipton,  
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BD23 2QR

## 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 draft FprEN 124-1 2014 standard along with the composite section FprEN 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.

## **Panel**

The composite trench panel supplied is a rectangular FS12-60-2-LD (Photo.1)



Photo. 1

## **Test Rig**

The test rig consists of a 'giant mecano' frame bolted to the floor and supporting the Enerpac 50 ton hydraulic cylinder.

The trench panel sat directly on two steel channels supported on its longest sides at a span of 205mm.

In accordance with the draft FprEN124-1:2014 standard the load cell and test rig complies with EN ISO 7500-1:2004 minimum Class 3.

Test Rig ID: EG100TF

Load Cell ID: 440/3243

Instron Calibration Certificate No. E225112816155035

System Class: 1

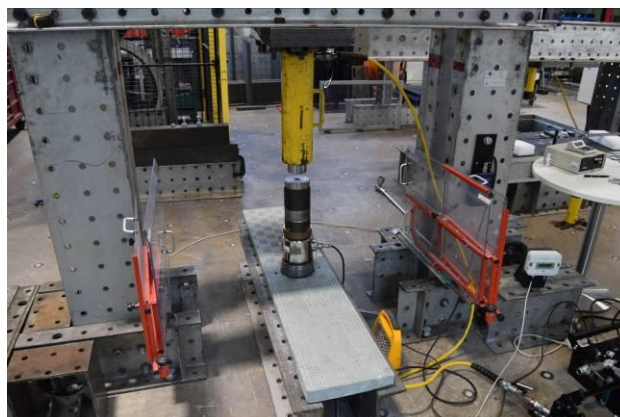


Photo.2

## **Test**

The tests were carried out in accordance with the FprEN 124:2014 standard for:

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

The load was applied to the panel through a 150mm diameter by 50mm thick steel block with a 150mm diameter by 10mm rubber pad between the block and panel.

### **Permanent Set Test**

Measurement of permanent set shall be made on the upper-side of the panel in the same place as the applied load at the longest dimension which can be inscribed within the panel 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 panel but not exceeding 10mm from the edge.

An initial reading is to be taken at the geometric centre of the panel 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.

### **Load Bearing Capacity**

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

### Permanent set test

Photograph 3 below shows the initial reading being taken for the permanent set test.

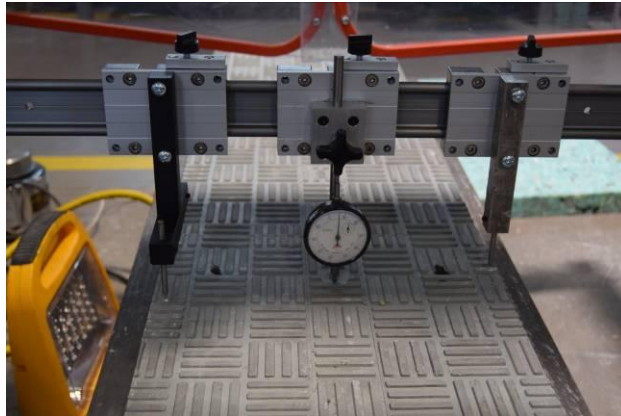


Photo.3

Initial Reading	0.00mm
Reading after 5 cycles	0.15mm
<b>Permanent Set</b>	<b>0.15mm</b>

Permissible permanent set for a B125 test is  $\frac{CO}{100} = \frac{304}{100} = 3.04\text{mm}$

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

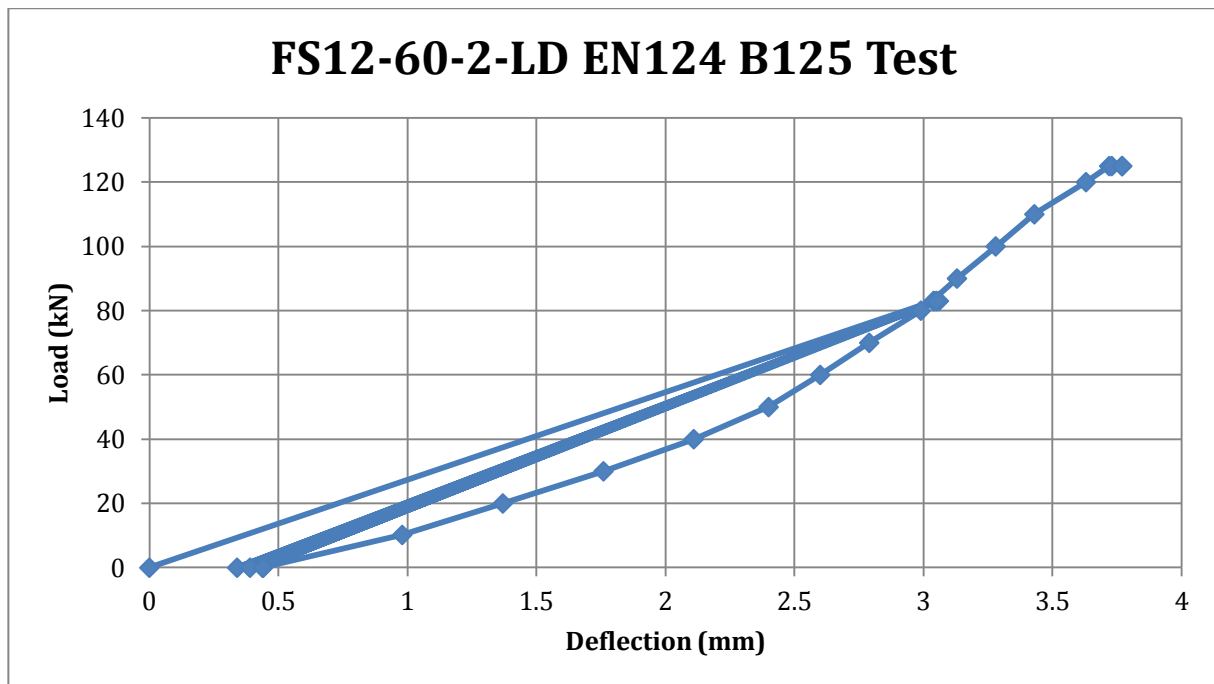
## Load Bearing Capacity Test

Load applied immediately after the permanent set test.

Although the standard does not require it for the load bearing test, a measuring device (linear potentiometer) was placed on the underside of the panel directly under the loading point and deflection readings taken every 20kN.

LOAD (kN)	DEFLECTION (mm)	REMARKS
0	0.00	
83	3.04	
0	0.34	
83	3.04	
0	0.39	
83	3.06	
0	0.44	
83	3.05	
0	0.44	
83	3.05	
0	0.44	
10.2	0.98	
20	1.37	
30	1.76	
40	2.11	
50	2.40	
60	2.60	
70	2.79	
80	2.99	
90	3.13	
100	3.28	
110	3.43	
120	3.63	
125	3.72	
125 (10 seconds)	3.73	
125 (20 seconds)	3.77	
125 (30 seconds)	3.77	<b>PASS</b>
0	0.49	
168	Gauge removed	Loud cracking and banging and load dropping off. Failure

**The panel held the test load of 125kN for the required 30 seconds so therefore passed the load bearing test.**



After the panel had passed the EN124 B125 load bearing test the linear potentiometer was removed from under the cover to avoid damage. The panel was then loaded further until ultimate failure occurred at 168kN.

Photograph 4 below shows the panel still in the test rig at the failure load of 168kN. The top face was badly deformed under and around the loading pad, with some cracking around the outer edges of the pad.

On the underside there was a large crack around the centre of the panel at the edge of the support. (Photo.5)

Deformed and cracks



Photo.4

Large crack

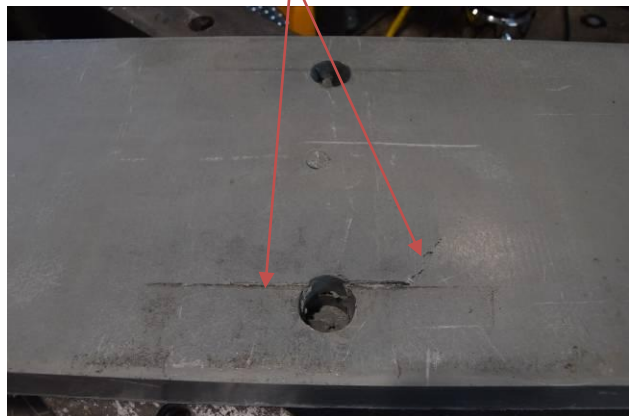


Photo.5