

## **TEST REPORT**

### **FL900 EN124 E600 Cover Test**

Date: 16/04/13

**Client: Fibrelite Composites Ltd.**

#### **Cover**

The cover supplied is a Fibrelite FL900 with an overall size of 980mm x 980mm x 100mm. (Photo.1)

The cover was also supplied with a new aluminium frame and seal for it to sit in with a clear opening of 900mm.



Photo.1

A steel box section frame 100mm x 100mm was manufactured to support the cover's aluminium frame. (See photo.2)

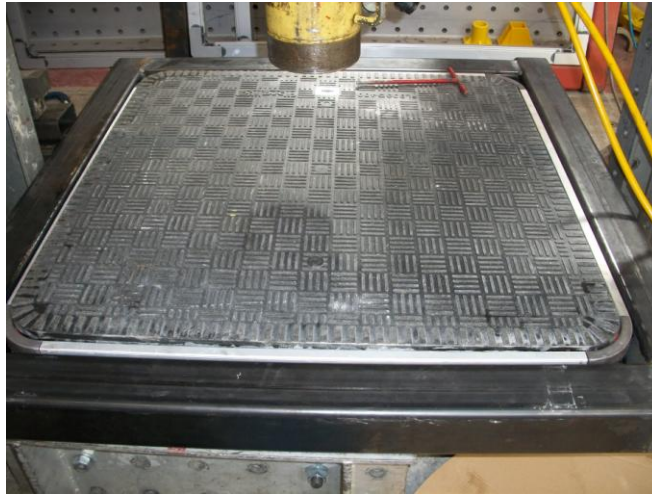


Photo.2

### **Test Rig**

The test rig consists of a 'giant mecano' frame bolted to the floor and supporting two Enerpac 60 tonne hydraulic cylinders. The cover and frame were seated on steel channels and shimmed to level. (Photo 3)

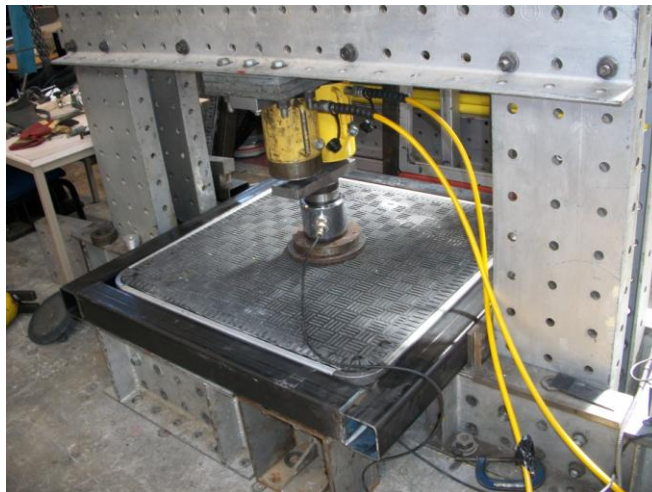


Photo.3

## Test

The test was carried out in accordance with BS EN 124, Class E600

The load was applied to the cover through a 250mm diameter by 45mm thick steel block with a 250mm diameter by 6mm rubber pad between the block and cover.

The load was measured using a 1000kN load cell (serial no. 3243N) and digital load indicator (serial no. D.I.B.1).

The deflection was measured at the centre on the underside of the cover using a dial indicator.

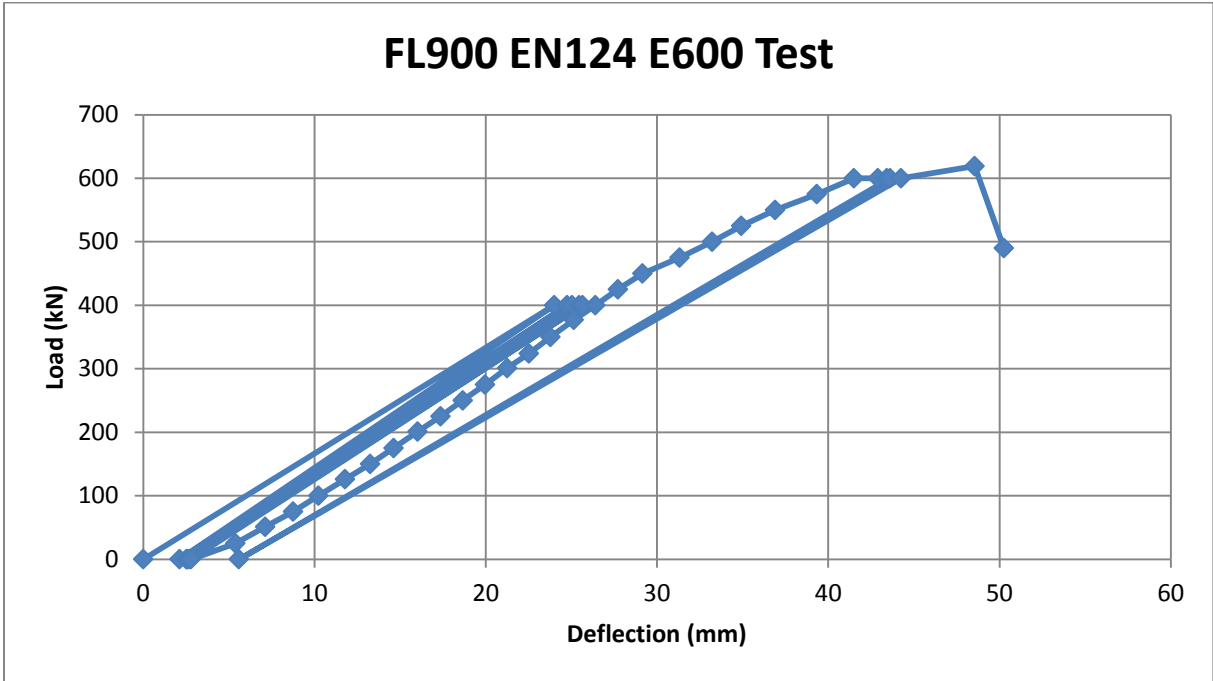
The test involved trying to load the cover to 2/3 of the test load and then releasing. This had to be repeated five times. It then had to be loaded to try and achieve the 600kN test load and held for thirty seconds

## Results

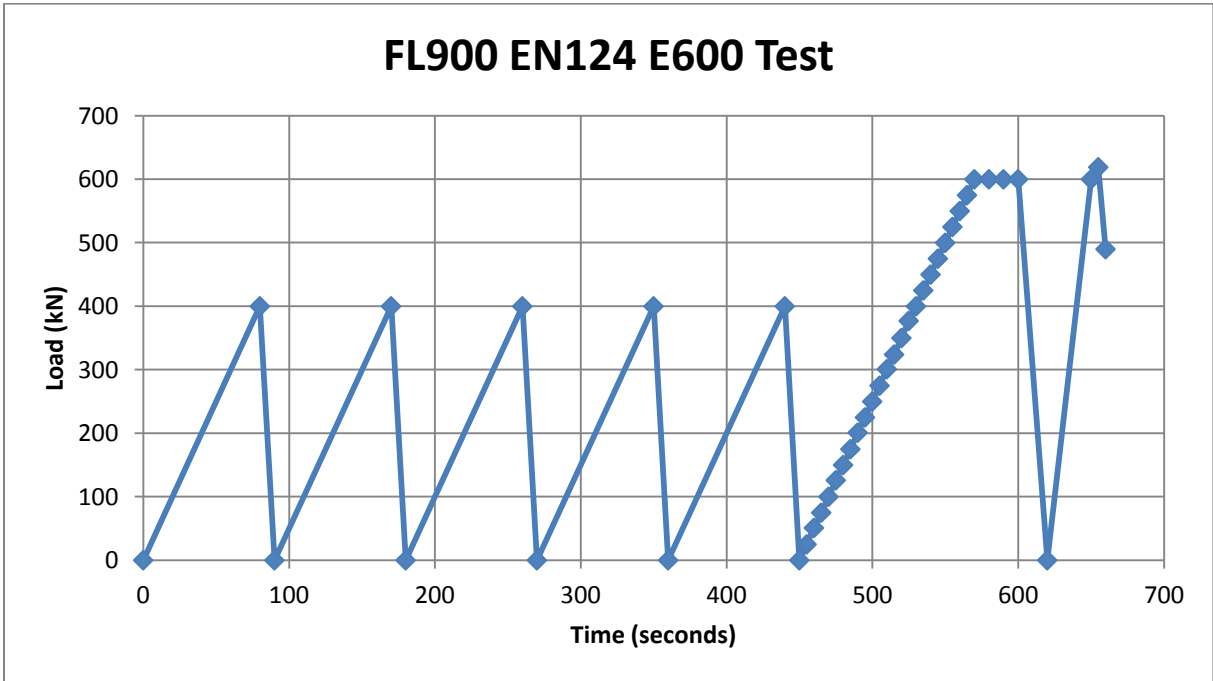
Load (kN)	Deflection (mm)	Remarks
0	0	
400	24.00	
0	2.12	
400	24.75	
0	2.52	
400	25.04	
0	2.57	
400	25.45	
0	2.65	
400	25.65	
0	2.78	
25	5.38	
51	7.12	
75	8.75	
100	10.23	
126	11.78	
150	13.25	
175	14.62	
201	16.02	
225	17.36	
250	18.66	
275	19.96	
301	21.25	

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	Some light cracking noises.
550	36.90	
575	39.33	
600	41.50	
600 (10 seconds)	42.90	
600 (20 seconds)	43.42	Some louder cracking noises.
600 (30 seconds)	43.61	
0	5.58	
600	44.25	
619	48.55	Loud cracking and tearing noises. Large crack appears on top face – failure.
490	50.26	

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**The cover held the test load of 600kN for the required 30 seconds so therefore passed the EN124 E600 test.**

**In accordance with EN124 Clause 8.3.1 the permanent set of the cover was 2.78mm which is within the permissible stated in Table 8 of the standard. ( $1/300 \times 900 = 3.00\text{mm}$ ).**

**The cover therefore passed the permanent set test also.**

After the cover had passed the EN124 E600 test it was loaded further to achieve failure.

The cover finally failed at 619kN with some loud cracking noises and two large cracks appearing on the top face.

Photograph 4 shows the cover at failure and still under load.



Photo.4

After failure the cover was removed from the test rig and visually inspected.

Photograph 5 shows the damage to the top face of the cover after failure.

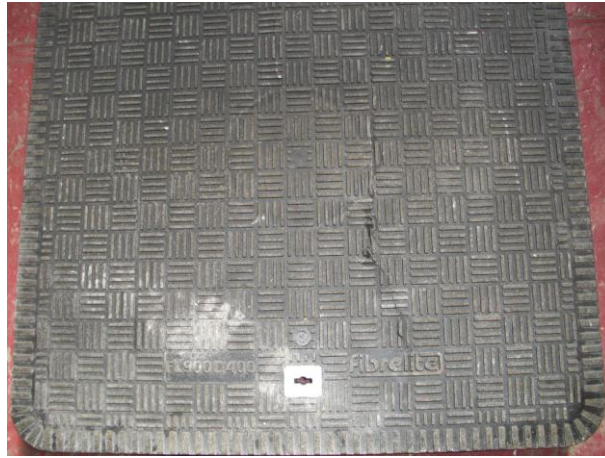


Photo.5

On the bottom surface there was some light cracking/crazing around the centre area of the cover. (See photo.6)



Photo.6

The frame showed no visible signs of any damage.

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