



TEST REPORT

FL900 EN124 C250 Cover Test

Date: 21/01/10

Client: Fibrelite Composites Ltd.

Cover

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

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



Photo.1

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

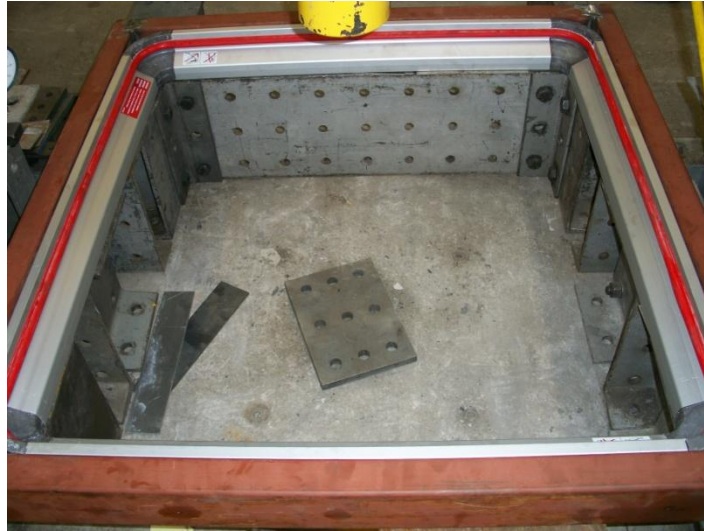


Photo.2

Test Rig

The test rig consists of a 'giant mecano' frame bolted to the floor and supporting the Enerpac 50 tonne hydraulic cylinder. The cover and frame was seated on steel channels and shimmed to level. (Photo 3)

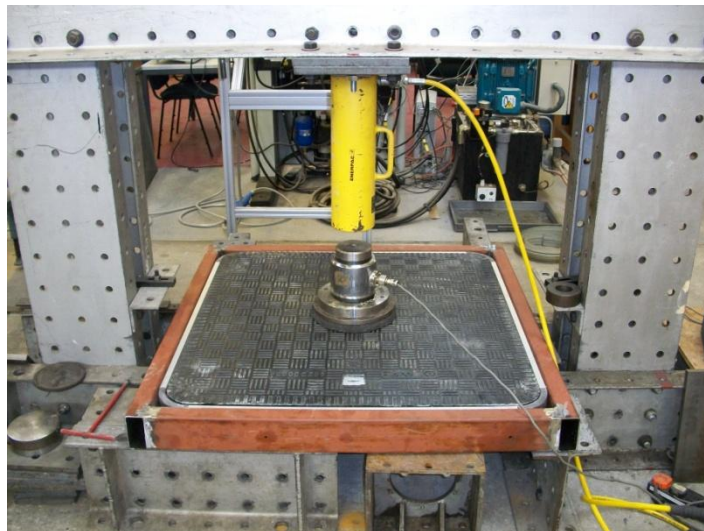


Photo.3

Test

The test was carried out in accordance with BS EN 124, Class C250

The load was applied to the cover through a 250mm diameter by 45mm thick steel block with a 250mm diameter by 25mm rubber pad between the block and cover.

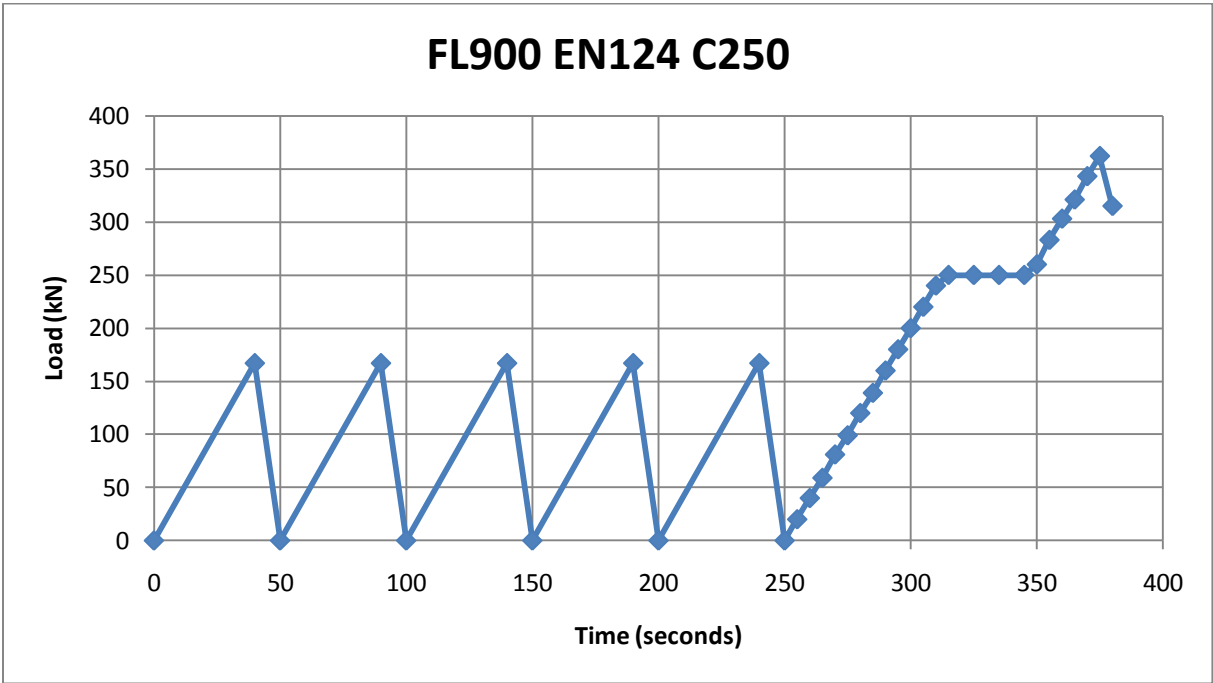
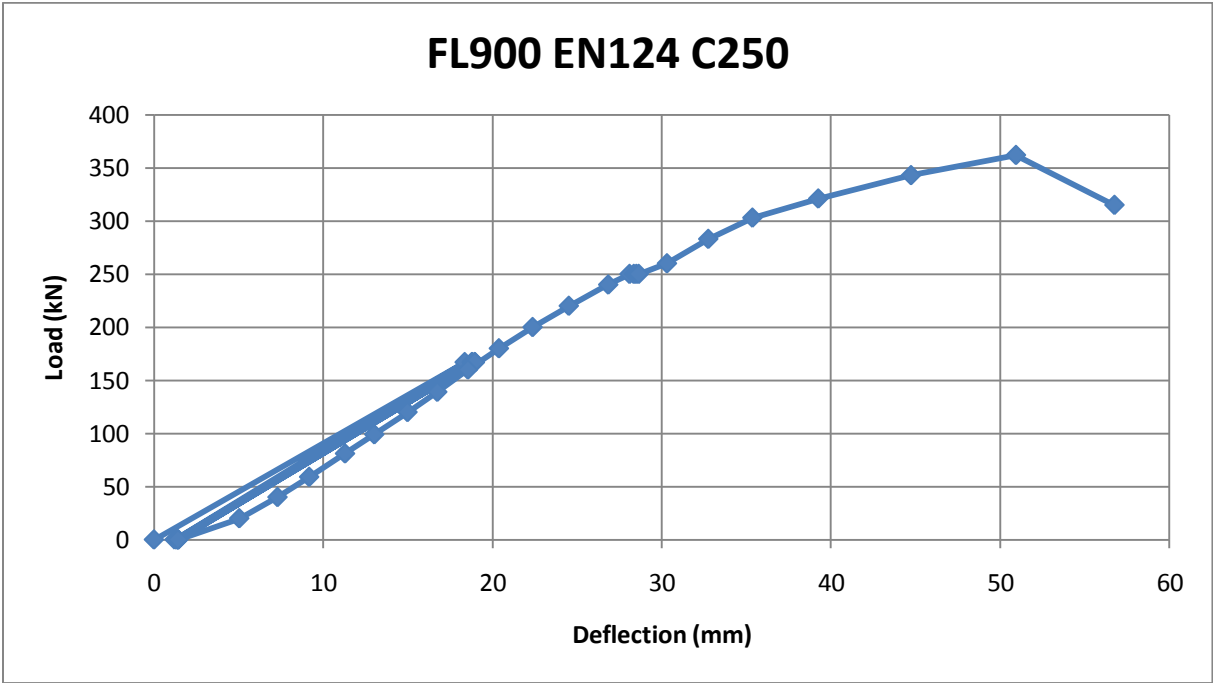
The load was measured using a 1000kN load cell (serial no. 3243N) and digital load indicator (serial no. D.I.B.1).

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 $\frac{2}{3}$ 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 250kN test load and held for thirty seconds.

Results

Load (kN)	Deflection (mm)	Remarks
0	0	
167	18.36	Light cracking noises from 30kN
0	1.22	
167	18.78	
0	1.35	
167	18.81	
0	1.41	
167	18.96	
0	1.44	
167	18.96	
0	1.42	
20	5.04	
40	7.30	
59	9.17	
81	11.29	
99	13.02	
120	14.98	
139	16.74	
160	18.55	
180	20.38	
200	22.37	
220	24.51	
240	26.84	
250	28.10	
250 (10 seconds)	28.35	
250 (20 seconds)	28.50	
250 (30 seconds)	28.64	
260	30.31	
283	32.75	
303	35.36	Louder cracking
321	39.25	Load dropping off
343	44.73	
362	50.93	Failure – crack appears on top surface
315	56.75	



In accordance with EN124 Clause 8.3.1 the permanent set of the cover was 1.42mm which is within the permissible stated in the standard ($1/300 \times 900 = 3.00\text{mm}$) The cover therefore passed that test.

The cover held the required test load of 250kN for 30 seconds and therefore passed the test.

After the cover had passed the EN124 C250 test it was loaded further to achieve failure.

By 300kN the cracking noises were becoming louder and by 320kN the load had started to drop off. At 363kN the cover finally failed with it unable to hold anymore load and a large crack appearing on the top surface.

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.

On the top surface a large crack had appeared and the cover was permanently dished around the loading area. (See photo.5)



Photo.5

On the bottom surface there was a large crack running through the centre of the cover. (See photo.6)



Photo.6

The frame showed no signs of any damage.

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