



TEST REPORT

FL100 Cover Test

Date: 08/07/11

Client: Fibrelite Composites Ltd.

Cover

The cover supplied is a round FL100 and of composite construction. (See photo. 1)
Cover No. - no number.

The cover was tested in a composite frame.
Frame No. – no number.

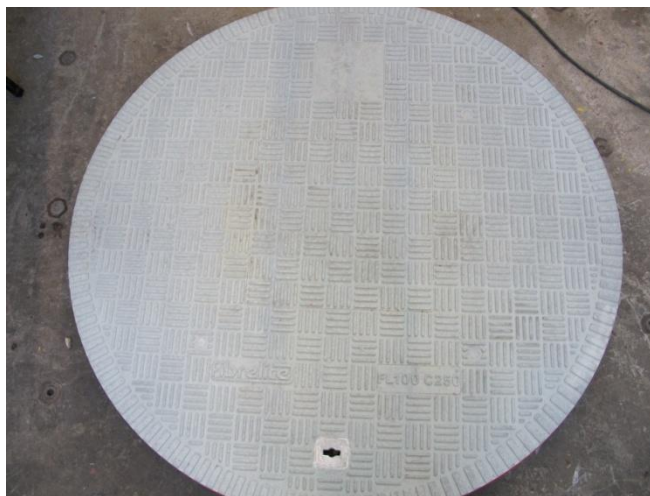


Photo. 1

Test Rig

The test rig consists of a 'giant mecano' frame bolted to the floor and supporting the Enerpac 50 tonne hydraulic cylinder. (Photo 2)

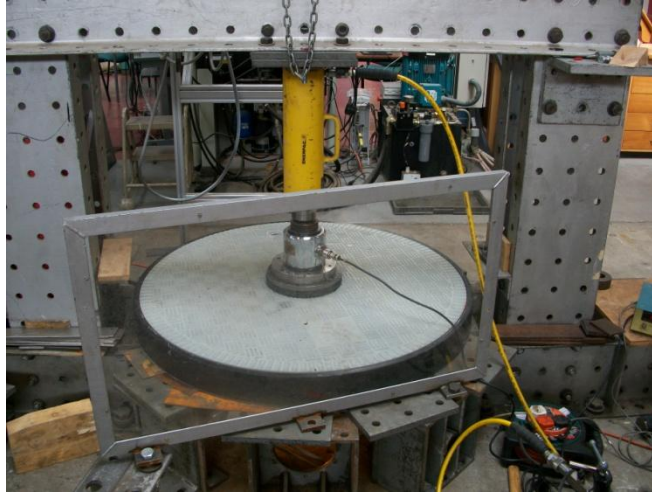


Photo. 2

The cover and frame were sat on steel channels and plates with steel shims to pack and level.

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).

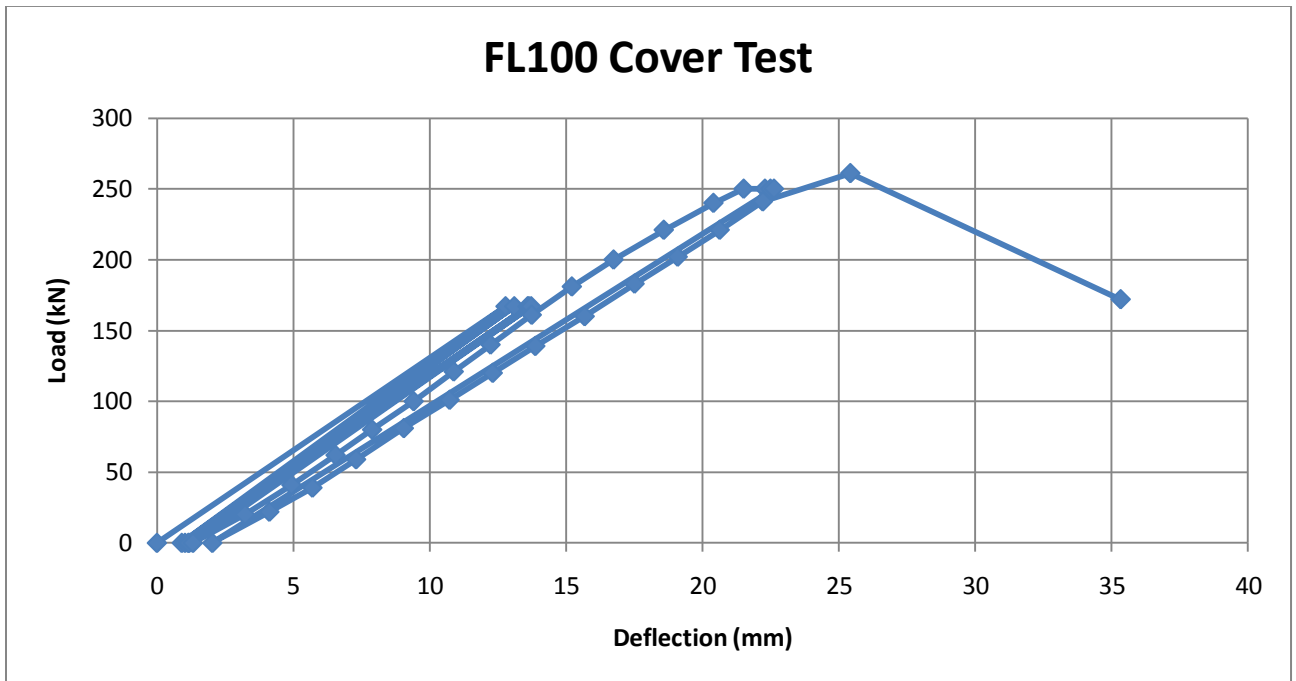
The deflection was measured at the centre on the underside of the cover using a dial indicator.

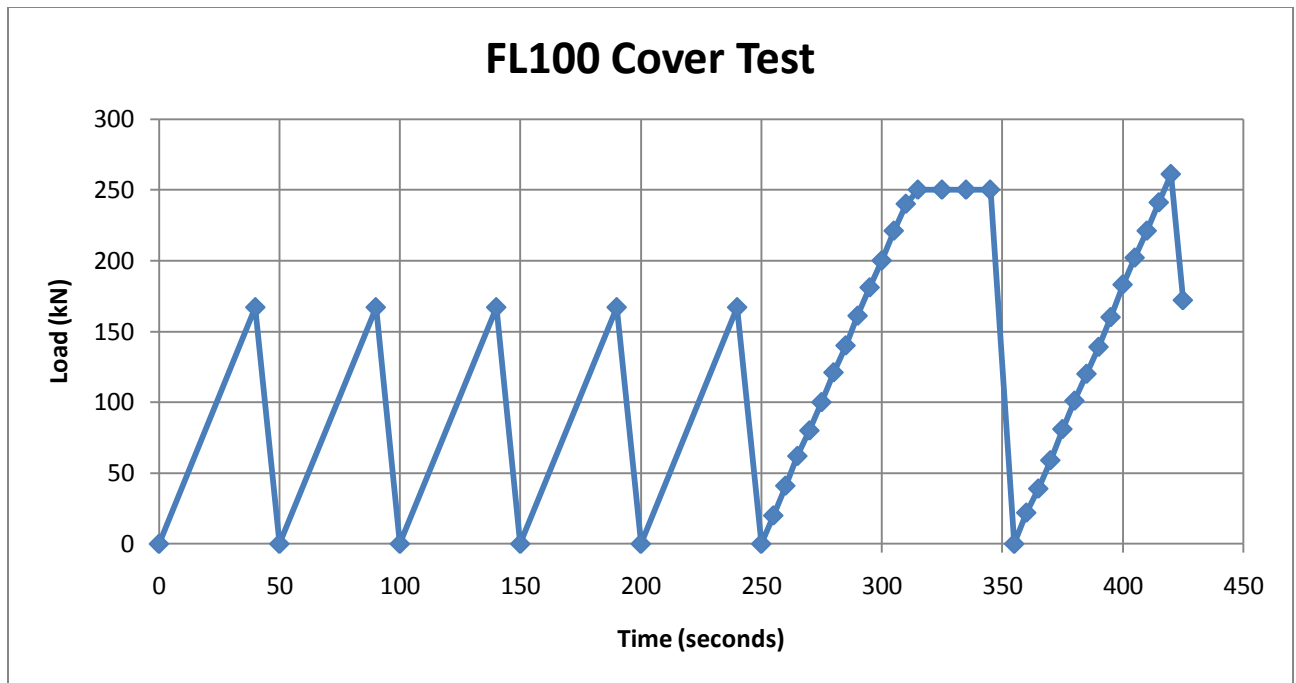
The cover was loaded to 2/3 of the test load and then released. This was repeated five times. It was then loaded to try and achieve the test load.

Results

Load (kN)	Deflection (mm)	Remarks
0	0.00	
167	12.78	Light cracking noises from 30kN onwards for the 1 st cycle.
0	0.91	
167	13.10	
0	1.03	
167	13.59	
0	1.15	
167	13.64	
0	1.18	
167	13.72	
0	1.32	
20	3.23	
41	4.93	
62	6.55	
80	7.89	
100	9.41	
121	10.88	
140	12.23	
161	13.74	
181	15.21	
200	16.74	
221	18.58	Louder cracking noises
240	20.40	
250	21.51	
250 (10 seconds)	22.29	
250 (20 seconds)	22.49	
250 (30 seconds)	22.62	
0	2.03	
22	4.12	
39	5.70	
59	7.30	
81	9.05	

101	10.73	
120	12.31	
139	13.87	
160	15.68	
183	17.51	
202	19.09	
221	20.63	
241	22.21	
261	25.42	Loud cracking / tearing noises – failure.
172	35.33	





The cover held the test load of 250kN for the required 30 seconds so therefore passed the EN124 C250 test.

In accordance with EN124 Clause 8.3.1 the permanent set of the cover was 1.32mm which is within the permissible stated in Table 8 of the standard. ($1/300 \times 1000 = 3.33\text{mm}$).

The cover therefore passed the permanent set test also.

After the cover had passed the EN124 C250 test, the load was released from the 250kN and after waiting two minutes for the cover to settle, the permanent set was recorded at 2.03mm

The cover was then loaded again until failure at 261kN

Photograph 4 shows the cover still in the test rig under load at failure and a large crack running across the cover through the centre.



Photo.4

Photograph 5 shows the cracking on the underside after the cover has been removed from the test rig.



Photo.5

There were no signs of any cracking to the top surface of the cover or any damage to the frame.

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