



TEST REPORT

FL180 EN124 C250 Cover Test

Date: 22/03/13

Client: Fibrelite Composites Ltd.

Cover

The cover supplied is a round FL180 and of composite construction with an overall diameter of 540mm and a depth of 100mm. (See photo. 1)
No. on cover – 2922

The cover was tested in a composite frame with a cover opening of 458mm.
Frame No. - 3115



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 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.

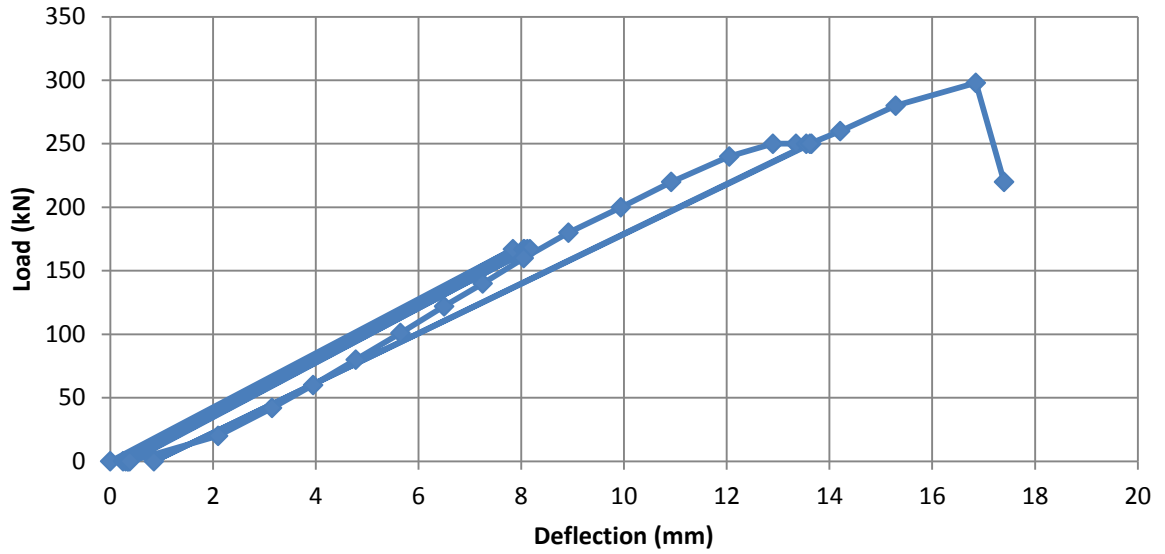
The cover was loaded to 2/3 of the test load and then released. This was repeated five times. It was then loaded to the test load of 250kN and held for 30 seconds before being released.

The cover was then loaded back up to failure.

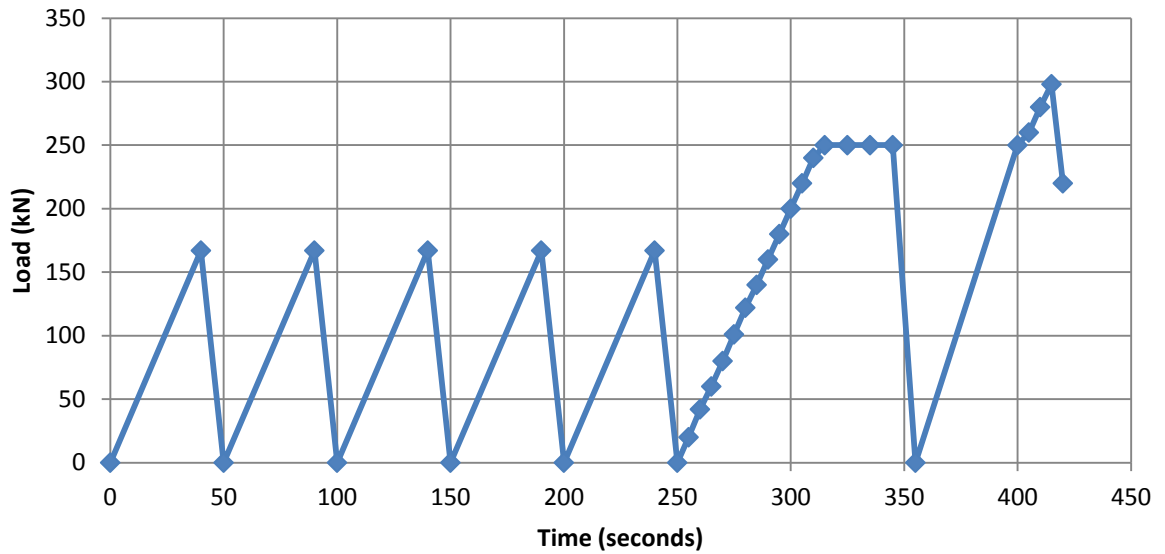
Results

Load (kN)	Deflection (mm)	Remarks
0	0	
167	7.84	
0	0.25	
167	8.05	
0	0.30	
167	8.06	
0	0.34	
167	8.12	
0	0.35	
167	8.17	
0	0.38	
20	2.10	
42	3.15	
60	3.95	
80	4.78	
101	5.65	
122	6.50	
140	7.25	
160	8.05	
180	8.92	
200	9.94	
220	10.92	
240	12.05	
250	12.90	
250 (10 seconds)	13.35	
250 (20 seconds)	13.55	
250 (30 seconds)	13.65	
0	0.85	
250	13.62	
260	14.21	
280	15.29	
298	16.85	Loud cracking/tearing – failure.
220	17.40	

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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 0.38mm which is within the permissible stated in Table 8 of the standard. ($1/300 \times 458 = 1.53\text{mm}$).

The cover therefore passed the permanent set test also.

After the cover had failed at 298kN it was removed from the test rig and inspected for damage.

On the top face a large crack had developed about 230mm long and 30mm from the centre of the cover. (Photo.3)



Photo.3

There were no visible signs of any damage to the bottom surface of the cover or to the frame.

M.A.Salisbury
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