



TEST REPORT

FL140 EN124 D400 Test

Date: 01/11/11

Client: Fibrelite Composites Ltd.

Cover

The cover supplied is a rectangular FL140 and of composite construction. (See photo. 1)

The cover sat in an aluminium frame, complete with seal and has a clear opening of 1400mm x 700mm.



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. The frame also sat in a steel framework made of 100mm x 100mm steel box section; this was to give support to the aluminium frame and for safety during testing. (Photo.3)



Photo.3

Test

The test was carried out in accordance with BS EN 124, Class D400.

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).

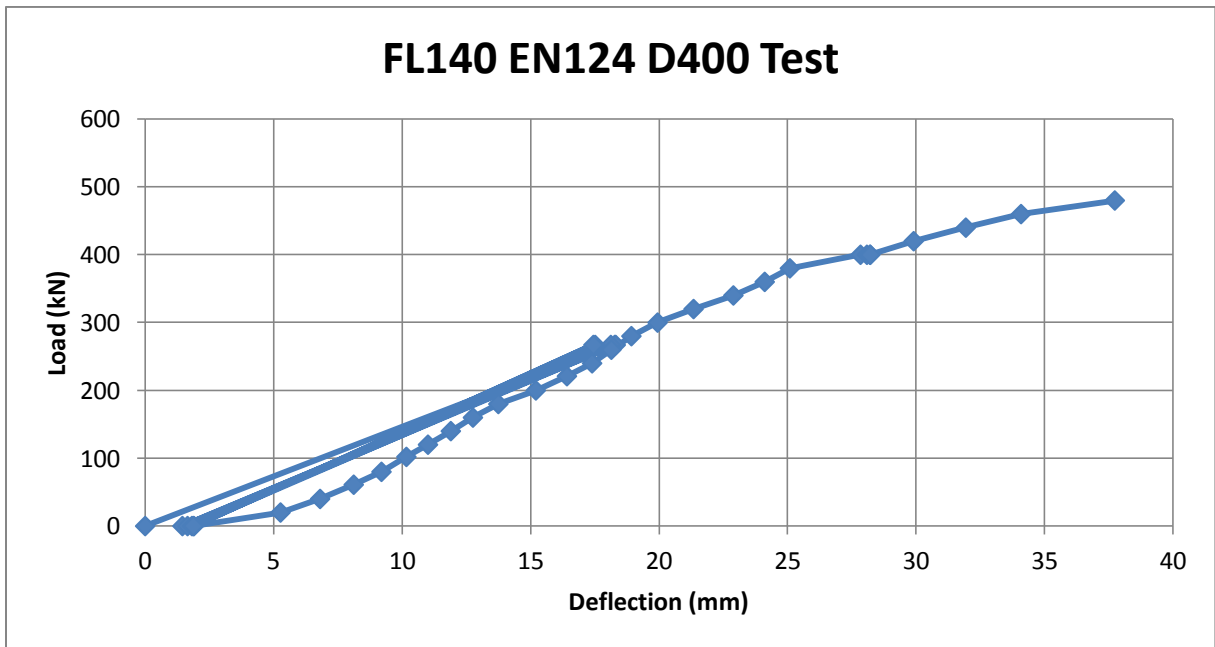
The deflection was measured at the centre on the underside of the cover using a dial indicator.

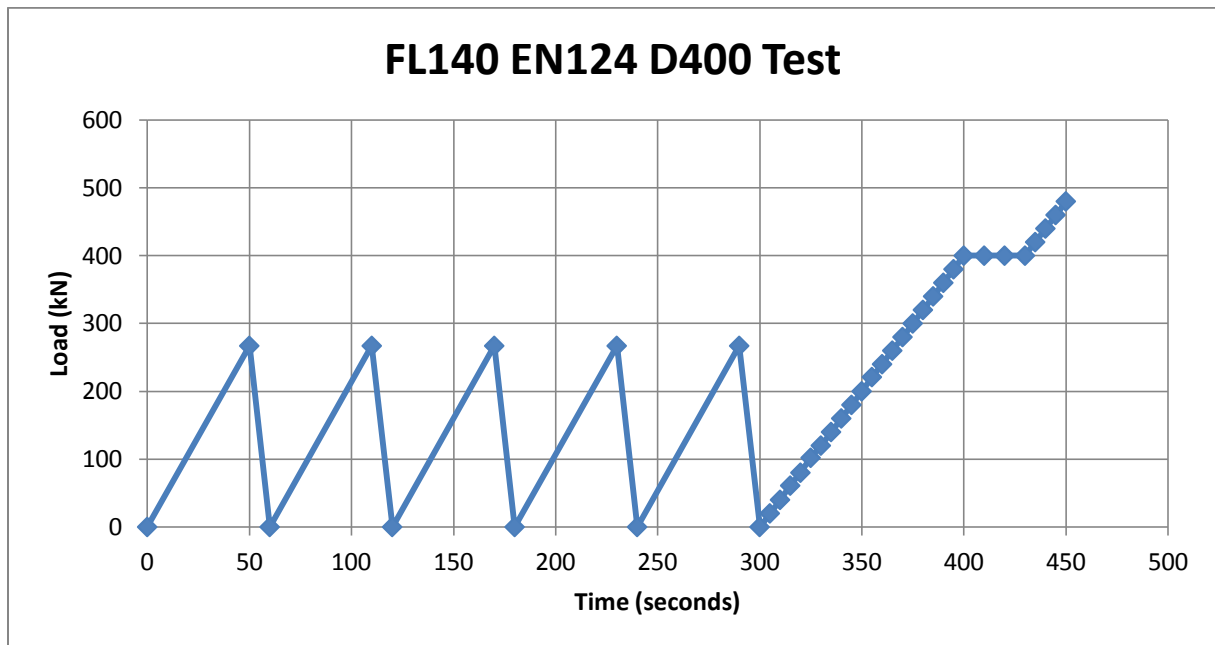
The cover was loaded to 2/3 of the test load and then released. This was repeated five times. It was then loaded to the test load and held for thirty seconds.

Results

Load (kN)	Deflection (mm)	Remarks
0	0.00	
267	18.28	Light cracking noises from 40kN onwards for the 1 st cycle.
0	1.45	
267	18.32	
0	1.65	
267	18.13	
0	1.82	
267	17.52	
0	1.90	
267	17.45	
0	1.87	
20	5.27	
40	6.81	
61	8.12	
80	9.20	
102	10.17	
120	11.01	

140	11.90	
160	12.76	
180	13.75	
200	15.21	
221	16.42	
240	17.40	
260	18.15	
280	18.93	
300	19.95	
320	21.35	
340	22.90	
360	24.12	
380	25.10	
400	27.85	
400 (10 seconds)	28.10	
400 (20 seconds)	28.22	
400 (30 seconds)	28.23	
420	29.92	
440	31.95	
460	34.10	
480	37.75	Max. load reached of test rig. Cover did not fail!





In accordance with EN124 Clause 8.3.1 the permanent set of the cover was 1.87mm which is within the permissible stated in Table 8 of the standard. ($1/300 \times 700 = 2.33\text{mm}$).

The cover was loaded up to the test load of 400kN and held for 30 seconds.

The cover therefore passed the EN124 D400 test for both permanent set and load.

After the cover had been held at 400kN for 30 seconds the load was then increased to try and achieve failure

The cover was loaded to 480kN at which point the load limit of the hydraulic ram was nearly reached and the steel support frame was starting to deform. It was therefore decided to end the test.

After the cover was removed from the test rig it was inspected for damage.

Photograph 4 shows the underside of the cover after it had been removed from the test rig. There were no signs of any cracking.



Photo.4

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