

TEST REPORT

FL90 Cover Test

Date: 28/05/10

Client: Fibrelite Composites Ltd.

Cover

The cover supplied is an FL90 and of composite construction. (See photo. 1)
No. on edge of cover – 104470

The cover was also supplied with a new composite frame for it to sit in.
The serial no. on the frame is 24936

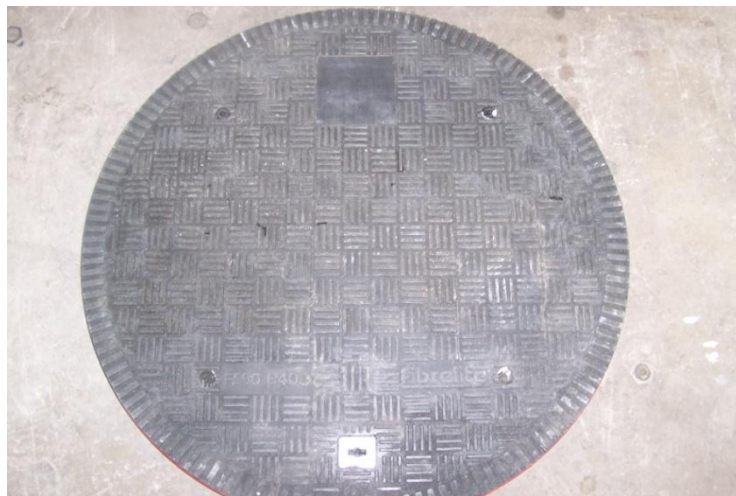


Photo. 1

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)

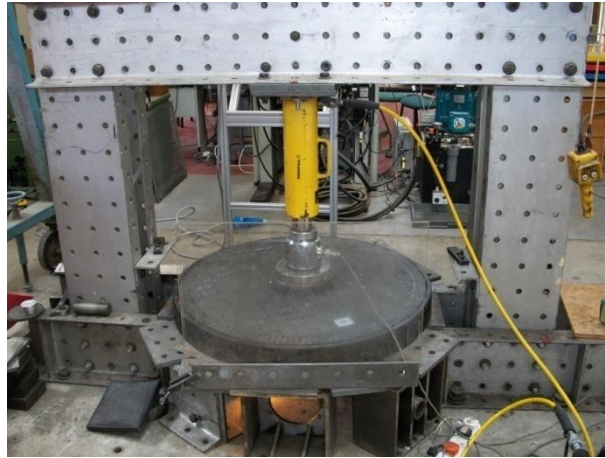


Photo. 2

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 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).

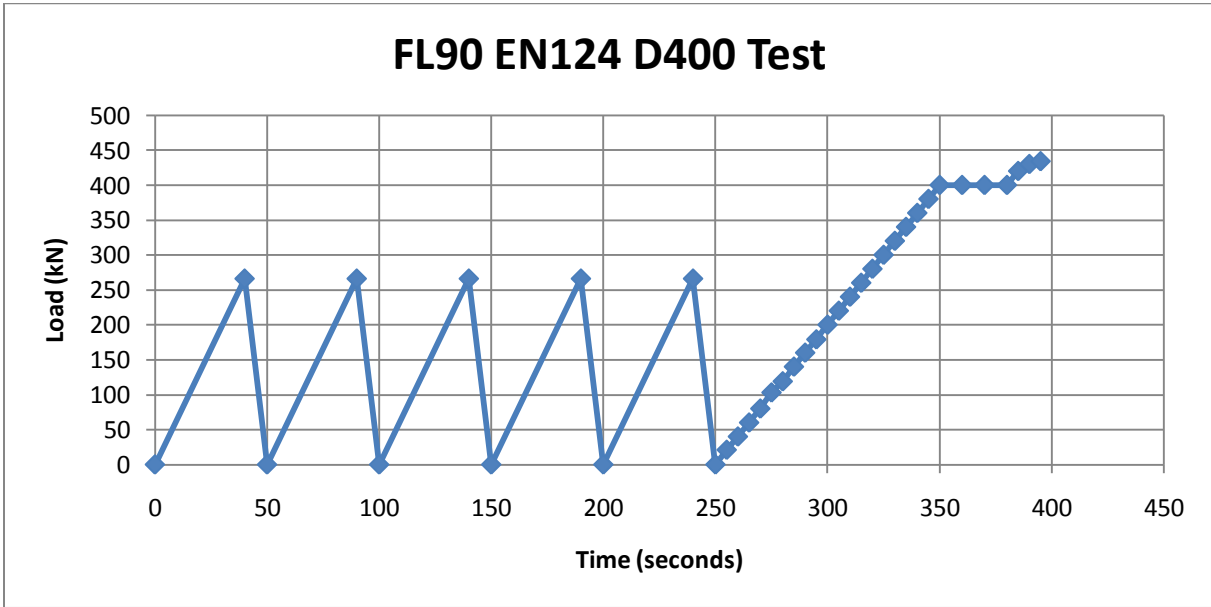
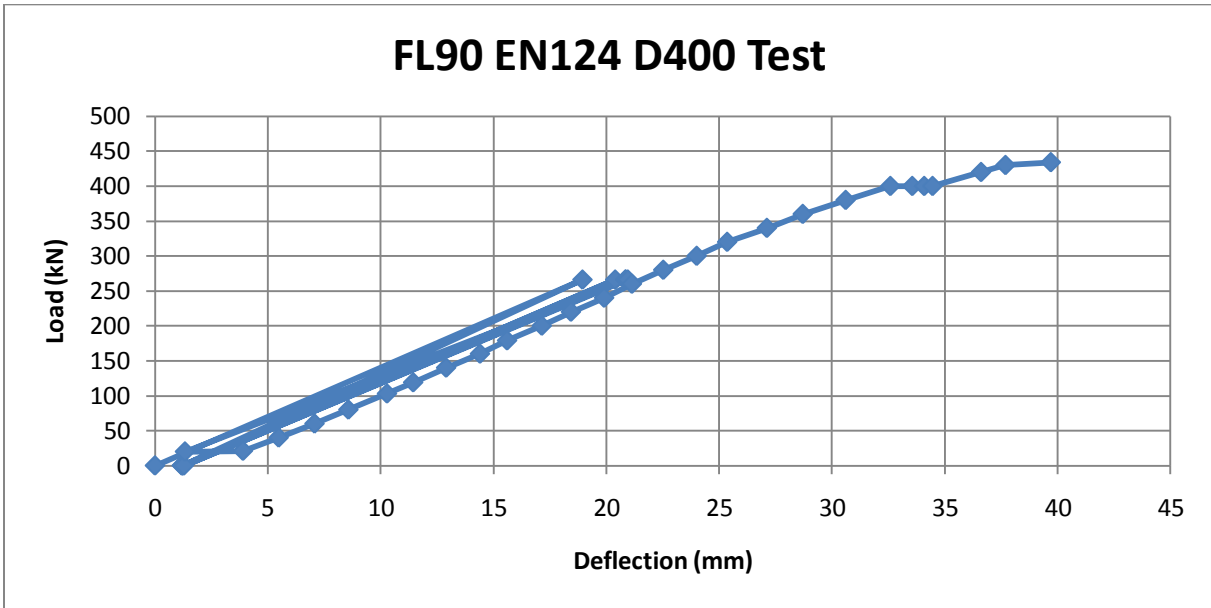
The deflection was measured at the centre on the underside of the cover using a dial indicator.

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.

After the thirty seconds the cover was then loaded to failure.

Results

LOAD (kN)	DEFLECTION (mm)	REMARKS
0	0.00	
266	18.94	
0	1.19	
266	20.39	
0	1.20	
266	20.84	
0	1.25	
266	20.86	
0	1.28	
266	20.95	
0	1.33	
21	3.90	
40	5.48	
60	7.07	
80	8.57	
103	10.28	
119	11.44	
140	12.90	
160	14.40	
179	15.60	
200	17.14	
220	18.43	
242	19.90	
260	21.13	
280	22.52	
300	24.00	
320	25.35	
340	27.11	
360	28.70	
380	30.60	
400	32.58	
400 (10 seconds)	33.55	
400 (20 seconds)	34.08	
400 (30 seconds)	34.45	
420	36.60	Louder cracking
430	37.68	
434	39.69	Loud bang! - failure



In accordance with EN124 Clause 8.3.1 the permanent set of the cover was 1.33mm which is within the permissible stated in Table 8 of the standard. ($1/300 \times 900 = 3.0\text{mm}$).

The cover held the test load of 400kN for the required 30 seconds with no visible signs of any cracking and therefore passed the test.

It was noted that throughout the test there were very few cracking noises and it was only when the cover was nearing the test load that anything significant was heard.

After the cover had passed the load test in accordance with EN124 Class D400 the cover was loaded further to failure.

The cover finally failed at 434kN with a loud bang and a large crack appearing on the top surface. Photograph 3 shows the cover still in the test rig after failure.



Photo.3

The large crack on the top surface also travelled right down the edge of the cover. (Photo. 4)



Photo.5

There were no visible cracks on the underside of the cover.

The frame showed a little damage with some light cracks on the edge. (Photo.6)



Photo.6

M.A.Salisbury
Senior Technician

M. A. Salisbury