

TEST REPORT

FM45 EN124 D400 Test

Date: 02/11/11

Client: Fibrelite Composites Ltd.

Cover

The cover supplied is a rectangular FM45 and of composite construction. (See photo. 1)



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)

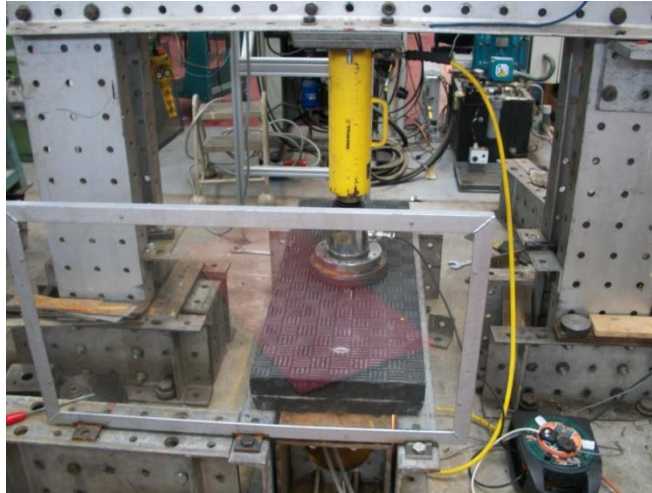


Photo. 2

The cover was sat on steel channels with steel shims to pack and level. The cover was seated with 55mm of channel supporting all four sides of the cover. This gave a clear opening of 1068mm x 315mm for the cover.

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.

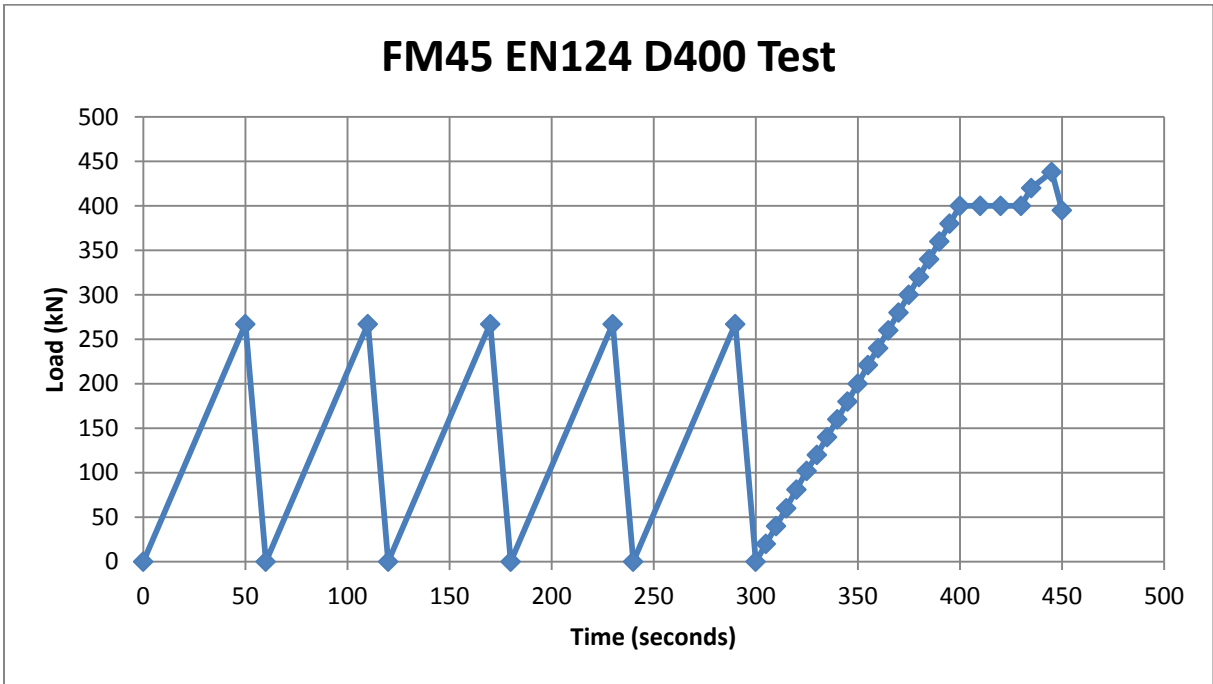
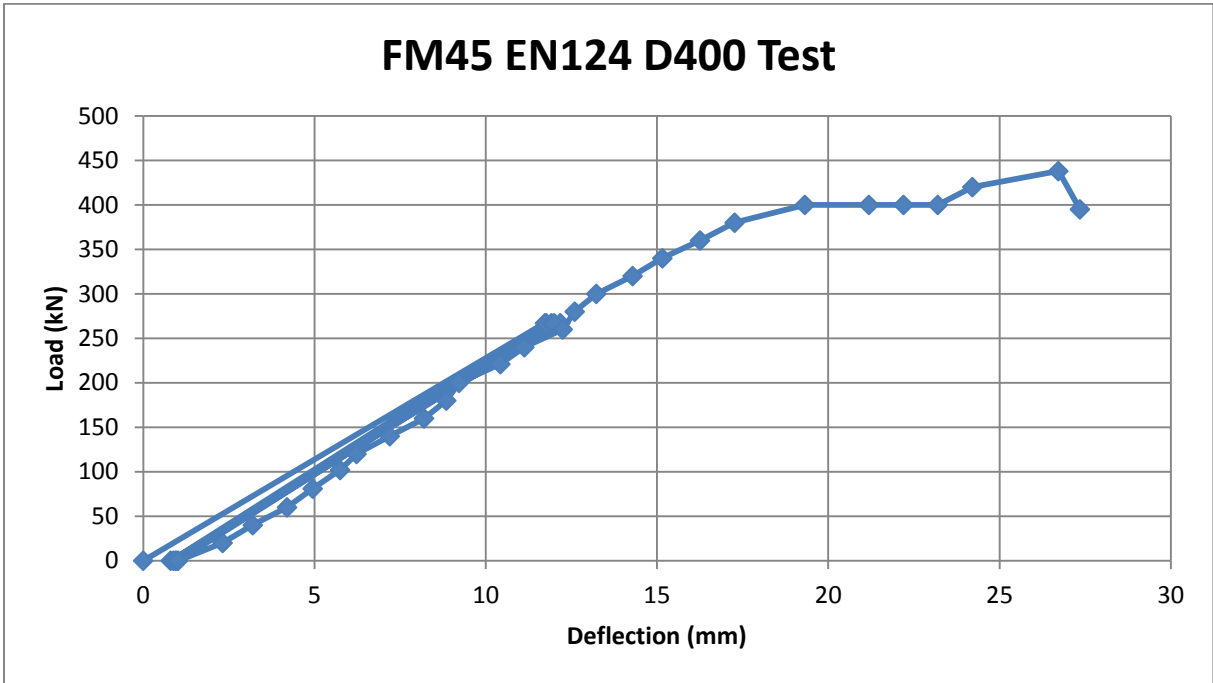
The load was measured using a 1000kN load cell (serial no. 3243N) and digital load indicator (serial no. D.I.B.1).

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	11.73	Light cracking noises from 140kN onwards for the 1 st cycle.
0	0.80	
267	12.18	
0	0.88	
267	11.77	
0	0.94	
267	11.92	
0	0.97	
267	12.00	
0	1.02	
20	2.32	
40	3.20	
60	4.20	
81	4.95	
102	5.75	
120	6.23	
140	7.20	
160	8.20	
180	8.85	
200	9.22	
221	10.43	
240	11.13	
260	12.25	
280	12.60	
300	13.23	
320	14.29	
340	15.16	
360	16.26	
380	17.27	
400	19.32	
400 (10 seconds)	21.19	
400 (20 seconds)	22.20	
400 (30 seconds)	23.20	
420	24.21	Louder cracking noises
438	26.72	Failure – loud cracking
395	27.35	



In accordance with EN124 Clause 8.3.1 the permanent set of the cover was 1.02mm which is within the permissible stated in Table 8 of the standard. ($1/300 \times 315 = 1.05\text{mm}$).

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 finally failed at 438kN with a number of cracking and banging noises and the cover unable to take any more load.

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

Photograph 3 shows the underside of the cover after it had been removed from the test rig. There were no signs of any cracking.



Photo.3

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