

TEST REPORT

FM45-D400-160 Trench Panel EN124 D400 Test

Date: 10/04/13

Client: Fibrelite Composites Ltd.

Cover

The cover supplied is a rectangular FM45, 1600mm x 450mm x 120mm Trench panel 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 supported on steel channels at each end leaving a span of 1470mm.

Test

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

The load was applied to the panel through a 250mm diameter by 45mm thick steel block with a 250mm diameter by 25mm rubber pad between the block and panel.

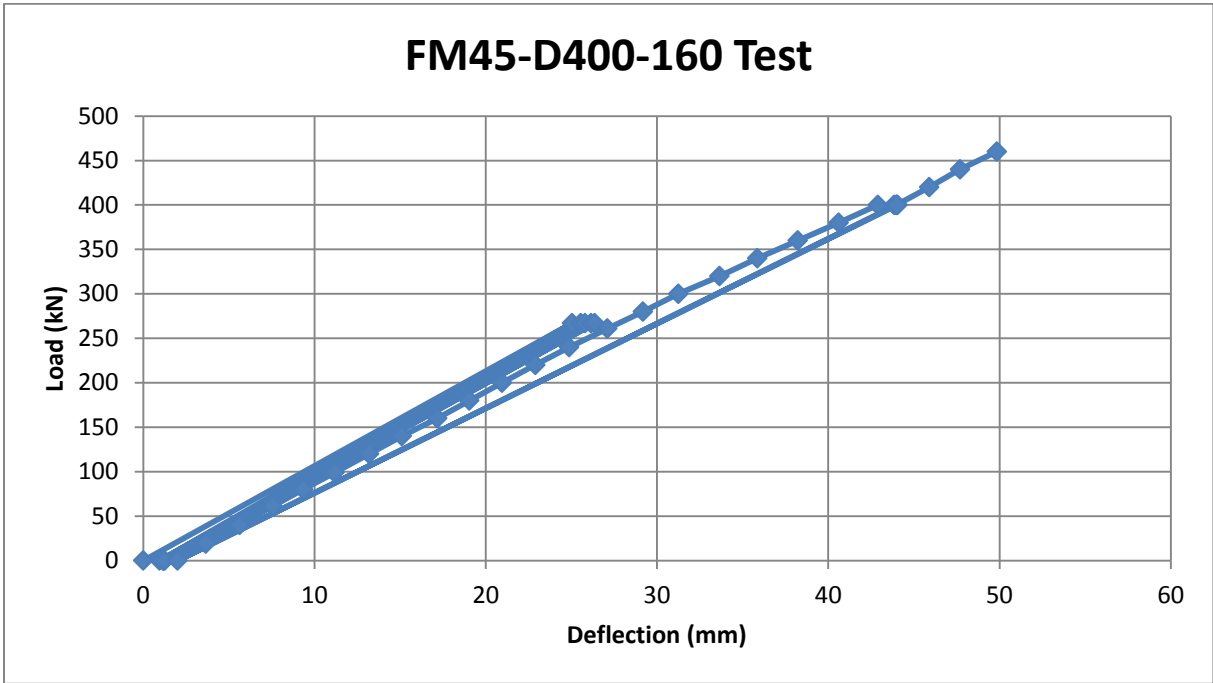
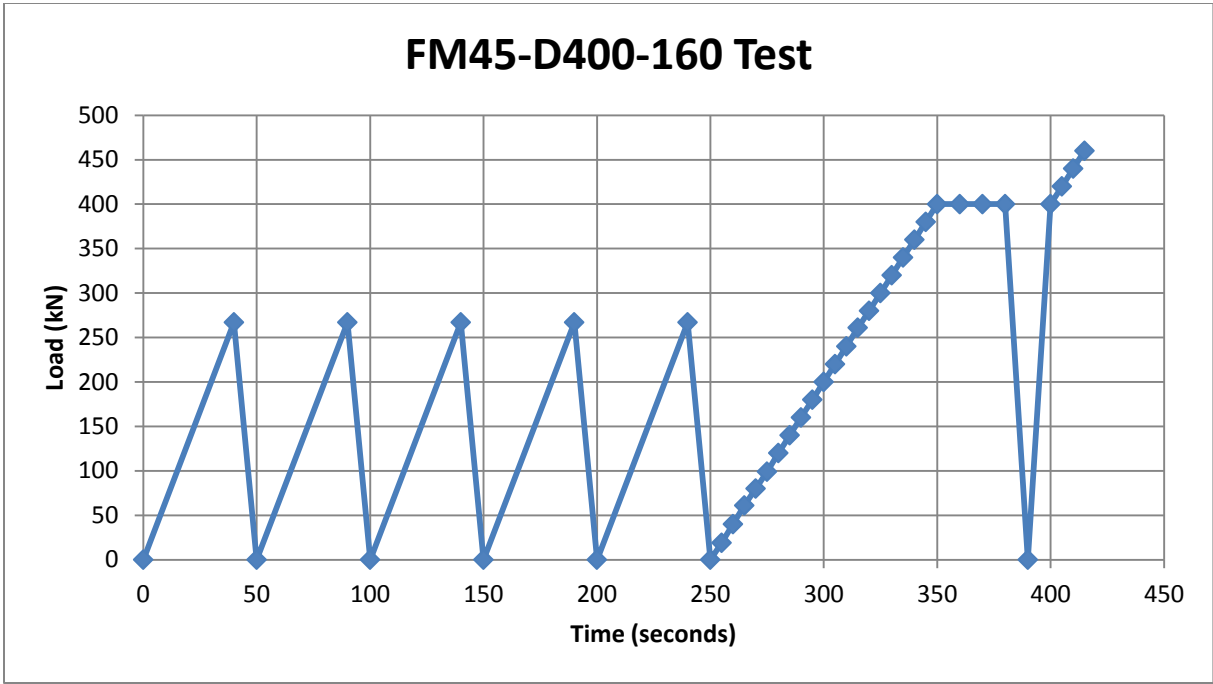
The load was measured using a 1000kN load cell (serial no. 3243N) and digital load indicator (serial no. D.I.B.1).

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

The panel was loaded to $\frac{2}{3}$ of the test load and then released. This was repeated five times. It was then loaded to try and achieve the test load of 400kN.

Results

LOAD	DEFLECTION (mm)	REMARKS
0	0.00	
267	25.04	
0	0.95	
267	25.55	
0	1.15	
267	25.80	
0	1.18	
267	26.15	
0	1.22	
267	26.36	
0	1.25	
19	3.65	
40	5.63	
61	7.56	
80	9.34	
99	11.17	
120	13.19	
140	15.10	
160	17.17	
180	19.04	
200	20.95	
220	22.90	
240	24.87	
261	27.10	
280	29.18	
300	31.25	
320	33.65	
340	35.86	
360	38.22	
380	40.61	
400	42.90	
400 (10 seconds)	43.85	
400 (20 seconds)	43.98	
400 (30 seconds)	44.05	
0	2.00	
400	44.00	
420	45.90	
440	47.70	Some light cracking noises.
460	49.85	Test stopped.



In accordance with EN124 Clause 8.3.1 the permanent set of the panel was 1.25mm which is within the permissible stated in Table 8 of the standard. ($1/300 \times 450 = 1.50\text{mm}$).

The panel held the test load of 400kN for the required 30 seconds.

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

After the panel had passed the EN124 test the load was released from the 400kN and a permanent set of 2.00mm was recorded.

The panel was then loaded to try and achieve failure.

Unfortunately the test had to be stopped at 460kN when the capacity of the test rig had been reached and the panel had not actually failed.

The load was released and the panel inspected.

The only visible sign of damage was on the underside where some light cracks could be seen near the centre. (Photo.3)



Photo.3

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