

Test Report No. 210911



Customer:- Structural Science Composites Co.

Evaluation carried out by:- Mr P Oldman – Independent Engineering Services
Mr S P Fox – Lloyds British Testing Ltd

Date 23rd February 2012

Product Type:- 3off CR90-EN124. C250
3off CR90 Composite Test to destruction
BS EN 1244:1994. C250
3 off CR 90 with Plug BS EN124:1994. C250

1. The tests were carried out at Lancaster University on the 24TH & 25TH November 2011 and 13th & 14th January 2012 on the covers clear opening shape (900mm) 6-off for permanent set (complementary) testing and three off for destructive testing. The review of the test results on the manholes met the requirements of EN 124 + Amendment 15/05/1995, section 8.0 in withstanding a load of 25.0 tonnes and maintaining a permanent set below the maximum permitted in the code, following five cyclic tests up to 2/3rds of the test load. The tests carried out by Lancaster University to the code requirements were found satisfactory.

2. The test reports covers the following covers and frames for permanent set tests. Description CR90 EN124 C250

Ref CR90 Covers	Date	Actual Permanent set	Code max
Cover no 3575	4/11/11	1.48mm #	3.0 mm
Frame no 3439			
Cover no 3579	24/11/11	1.17mm	3.0mm
Frame no 3441			
Cover no 3585	25/11/11	1.08mm	3.0mm
Frame no 3438			
CR90 with plug EN124 C250			
Cover no 3671	14/01/12	1.42mm #	3.0mm
Frame no 3413			
Cover no 3808	13 /01/12	1.88mm #	3.0mm
Frame no 3397			
Cover no 3818	13/01/12	2.17mm #	3.0mm
Frame no 3398			

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Note:- These covers are based on section 7.8a and 7.8c of the code using the 1/300 factor for type of fixing.

Note load held on cover maximum 30 seconds

All of the above covers and frames met the BS EN124:1994 code requirements .

The following 900mm diameter covers were tested to destruction to ascertain the ultimate failure load which must exceed the 25.0 tonnes.

The following reports detail the actual failure loads.

Report date	Cover/Frame ref	Failure load Tonnes	Max Deflection at failure load
24/11/2011	3572/3383	28.0	35.35mm
24/11/2011	3574/3383	29 .0	37.51mm
25/11/2011	3586/3383	28.9	38.24mm

3. Please note: On these cover reports BIF 3671,3808 and 3818 did have a 190mm dia plug covering a 150mm dia hole. This hole reduces the cover strength.

4. However all the three covers met the requirements of the code for permanent set and withstanding the 25.0 tonnes loading for the time period.

5. These comments are made on the basis of the reports as detailed above and are made without bias to any test laboratory or persons.

6. These covers were tested in a locked position in this instance, therefore the design factor of 1/300 was used.



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