

## Test Report No. 2.5/20700/0432.0.1-2009e

### General information

Report requested by: **Lübbering Umwelttechnik GmbH**  
**Landstr. 2**  
**58730 Fröndenberg**

Order placed on: 2 April 2009  
Specimen received on: 2 April 2009

**Material:** Steel cover for well in accordance with DIN EN 124  
Cover resting on a concrete frame  
Product manufacturer's name: **WAD III E G 400kN 920x920**  
(product name given by the company requesting the report)

### Tests

Load test as per DIN EN 124

The test was carried out on 2<sup>nd</sup> April 2009.  
The values hold only for the steel cover tested.

Results are reported to the accuracy given in the standards. For statistical evaluation, the measured accuracy is taken into account.

This test report comprises 2 pages and 1 appendix (A1). No part of this test report may be published.



## 1. General information

The steel well cover provided by Lübbering Umwelttechnik GmbH has the following features:

Steel cover in welded design, incorporated in the concrete frame (clear width LW = 920 mm).

The structure of the well cover and its dimensions can be seen from Appendix A1.

## 2. Test method

The test force (in accordance with DIN EN 124 section 8.1) was applied using a hydraulic cylinder (Enerpac 600 kN) driven by an electric pump and equipped with constant load conditioning. The pressure is read from a digital pressure gauge (made by the company Kobold, gauge type MAN-SF26AV1, pressure range of 0 – 1000 bars) with a resolution of 1 bar. The test apparatus (cylinder, pump, pressure gauge) has been calibrated using a class 1 test machine. The load was supplied by a steel plate (d = 250 mm) buffered by an intermediate layer of needle fleece. Deformation was measured using a displacement sensor (Mitutoyo) with a dimensional accuracy of 0.01 mm. The concrete frame was loaded onto the test frame with the needle fleece covering (approx. 10 mm thick).

## 3. Manner of execution

The specimen was tested in order to check if it could withstand a test load of 400 kN ("D 400" class).

To do so, the specimen was subjected to a load of 2/3 of the test load 5 times within 30 seconds each; after the load was removed, the permanent set (i.e. deformation) was measured in the geometrical centre of the specimen.

## 4. Results

With 0.51 mm bending after 2/3 of the 400 kN test load were applied 5 times, the steel well cover comes up to the demands placed on D 400 systems (length of bending path < clear width / 300 = 920/300 = 3.1 mm).

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