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Test Report No. B 44.19.036.03(EN)

Order: Load-bearing capacity test of the 200 kg cover "Picobells Beton"

Client: Picobells GmbH
Raiffeisenstraße 21
21762 Otterndorf

Order date: 24.09.2019

Standards:

/ 1 / DIN EN 124-1: 2015-09
Gully tops and manhole tops for vehicular and pedestrian areas - Part 1: Definitions, classification, general principles of design, performance requirements and test methods;

By Order

Weimar, 26.11.2019

Dr.-Ing. S. Linne
Head of dept.

THÜRINGEN 38 Weimar Materialforschungs- und -prüfanstalt

Dr.-Ing. Uwe Gerth
Deputy head of dept.

1 Test item

Picobells GmbH has commissioned the proof of the carrying capacity for a "200 kg cover" made of concrete. The test arrangement (test speed, diameter of the load plate) was performed in accordance with DIN EN 124-1: 2015-09, section 8.3 (Appendix B - load bearing capacity). Figures 1 and 2 show the test specimen in the test setup. The support forms a piece of dome of a Picobells container.

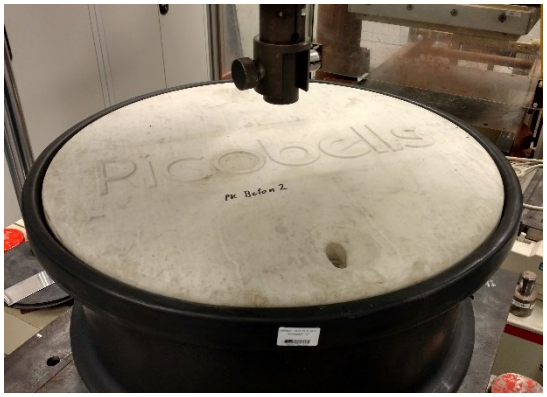

Fig. 1: Concrete cover „Picobells 200 kg“

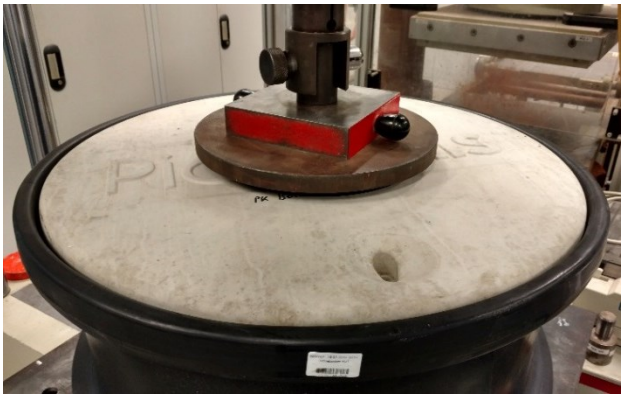

Fig. 2 Test stamp d = 250 mm, rubber interlayer

2 Tests

A static load test is performed until failure. The tests were carried out in the accredited testing laboratory of MFPA Weimar. The properties of the three specimens are summarized in the Table 1. Figures 1 and 2 show the test specimen in the test arrangement. The test equipment used is a 100 kN load frame from ToniTechnik, load plate d = 250 mm, rubber interlayer, bearing pedestal PE.

Table 1 - Compilation of the properties of test specimens

Characteristic value / property	**Statement**
Inside diameter of the frame	605 mm
Diameter of the cover	642 mm
Material	Concrete C35 / 45, stainless steel grid
Particularities	2 holes for lifting the lid

3 Results

The failure is achieved by reaching the concrete tensile strength combined with a sudden initial crack on the underside (see pictures 3 and 4). The test specimens continue to bear the service load of 200 kg (= 1.96 kN) after breakage of the concrete tension zone.

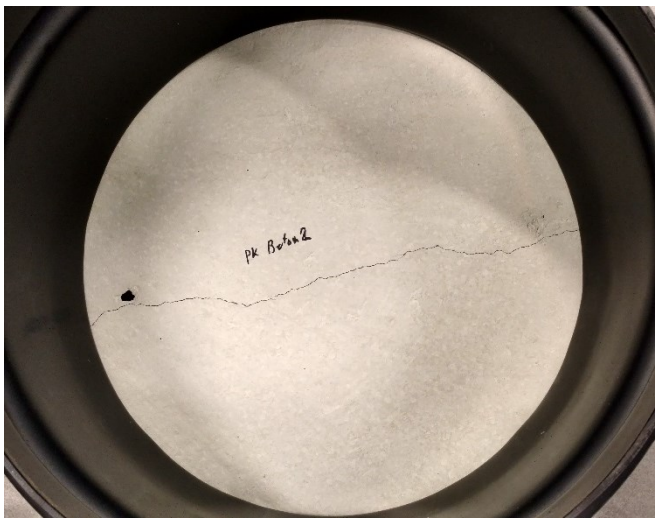

Fig. 3: Bottom view after failure PK2

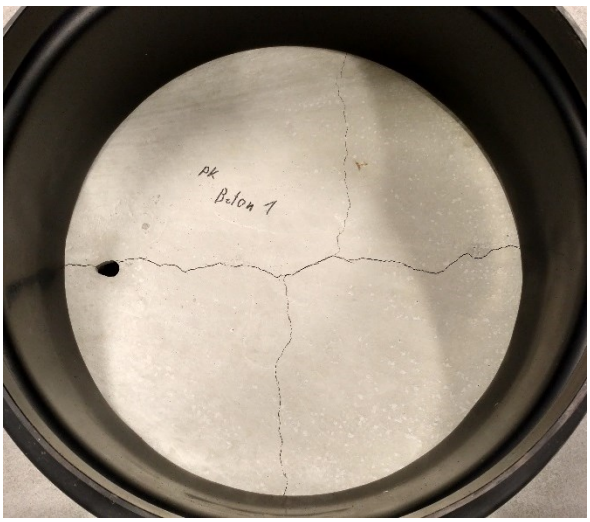

Fig. 4: Bottom view after failure PK1

Table 2: Results

Test / Test specimen	**Breaking force [kN]**	**Assessment concerning 200 kg (1,96 kN)**
Specimen 1	11,02	Load factor 5,62
Specimen 2	12,64	Load factor 6,44
Specimen 3	14,09	Load factor 7,18
Mean ± standard deviation	**12,58 ± 1,54**	**Load factor 6,41**

All generated force-time curves are attached as machine graphics.

Conclusion: The Picobells concrete lid "200 kg" has an average breaking force of 12.6 kN. The smallest single value was found to be 11 kN.

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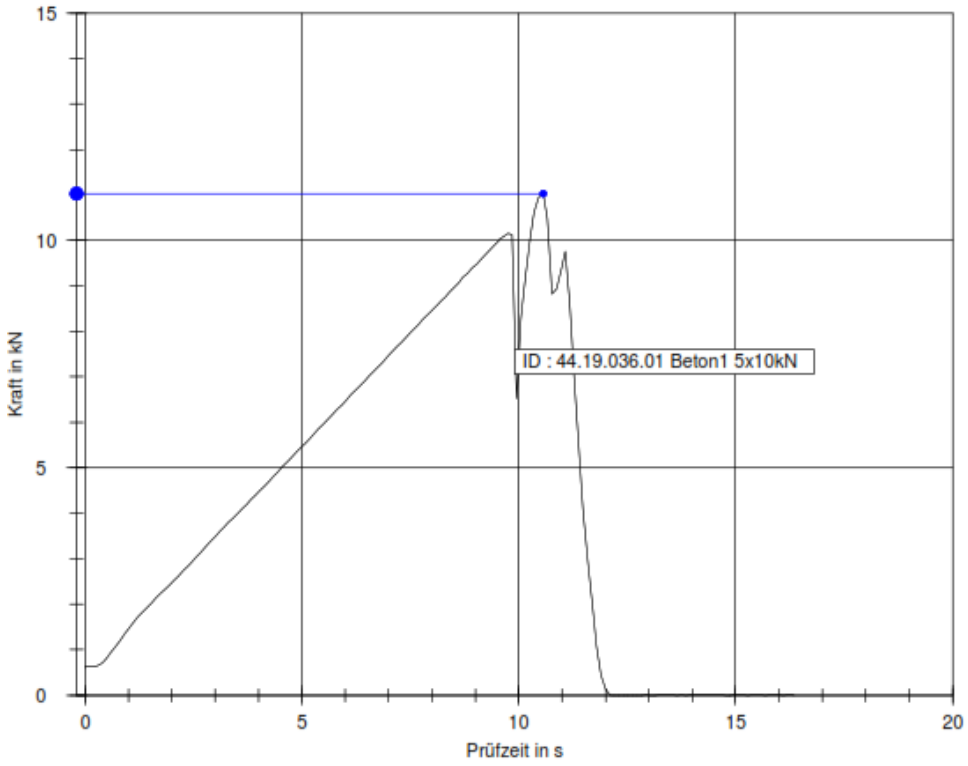
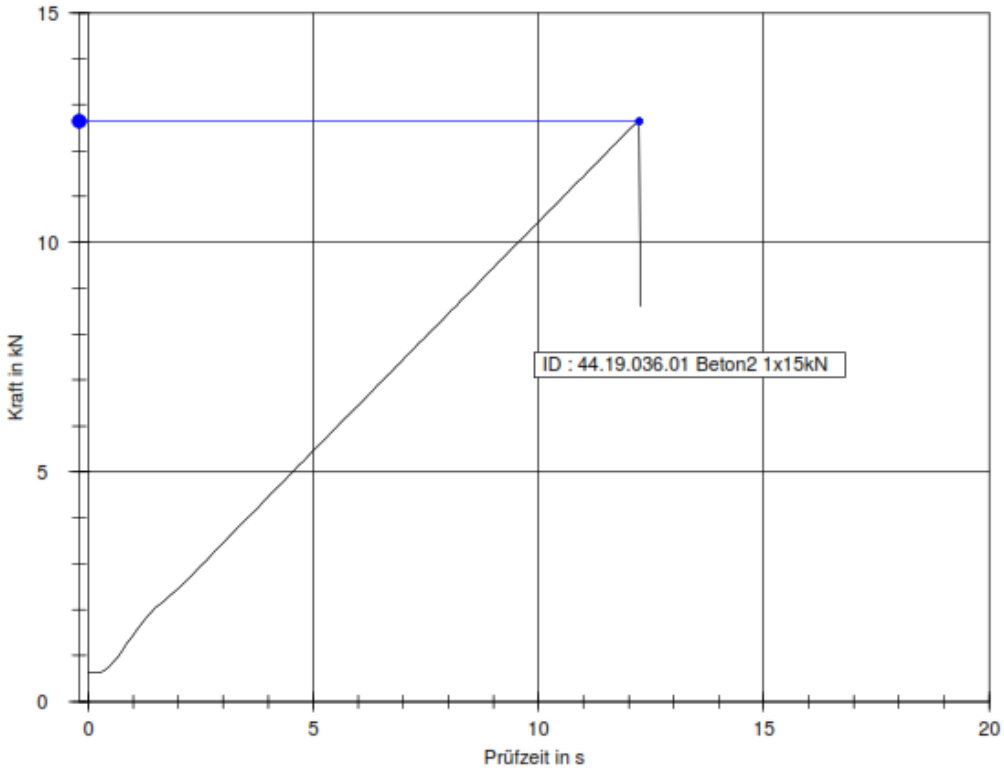
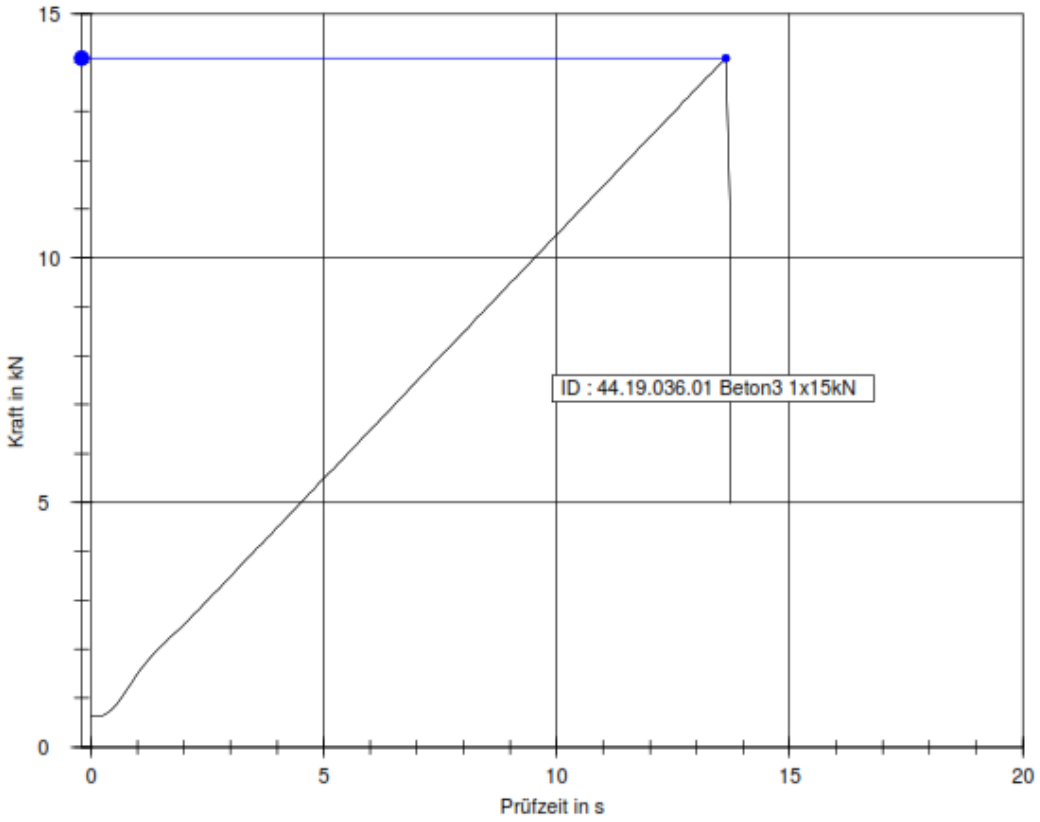
Attachments: machine curves



Specimen 1: Load 11.02 kN



Specimen 2: load 12.64 kN



Specimen 3: load 14.09 kN

End of the appendix to the test report no. B 44.19.036.03 (EN)