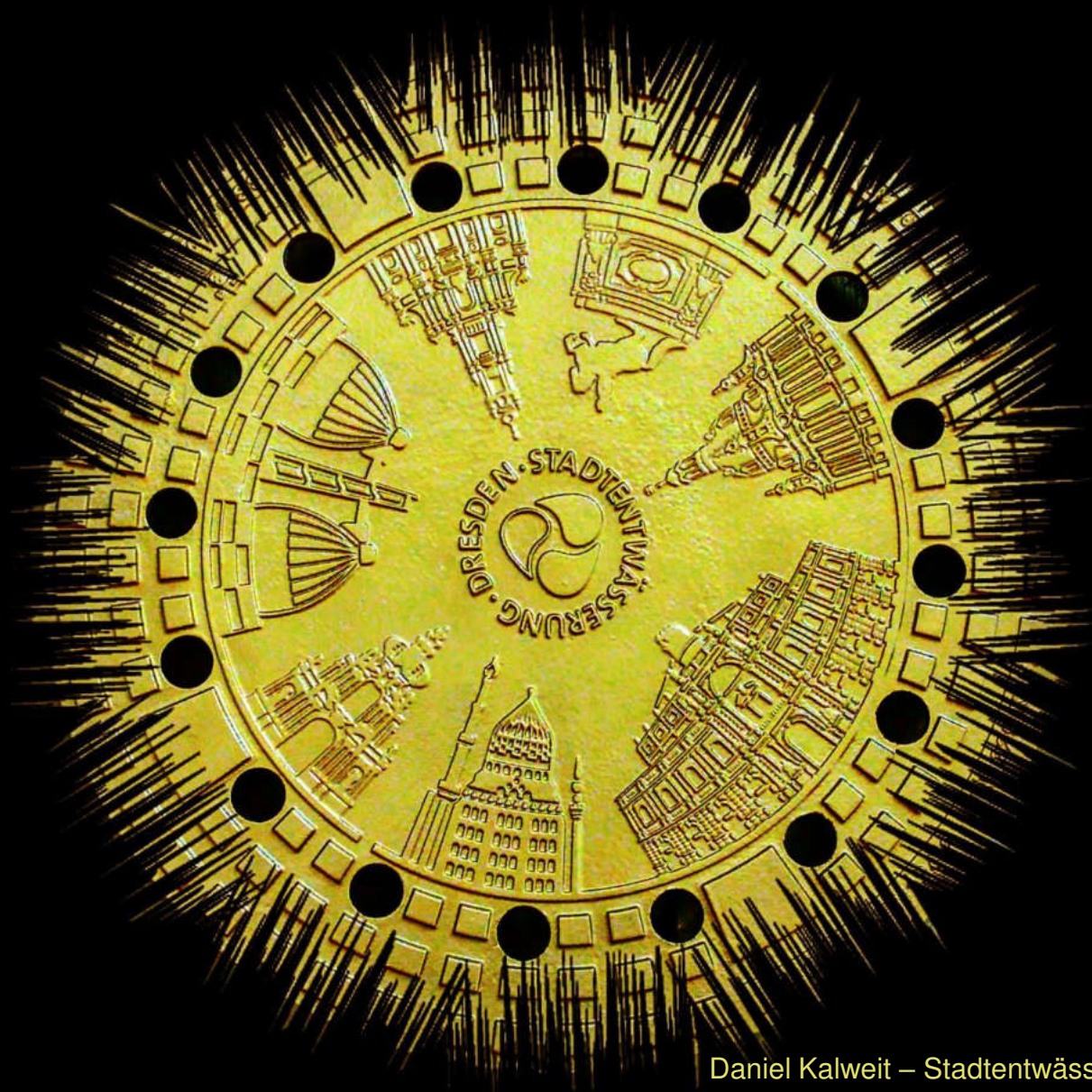
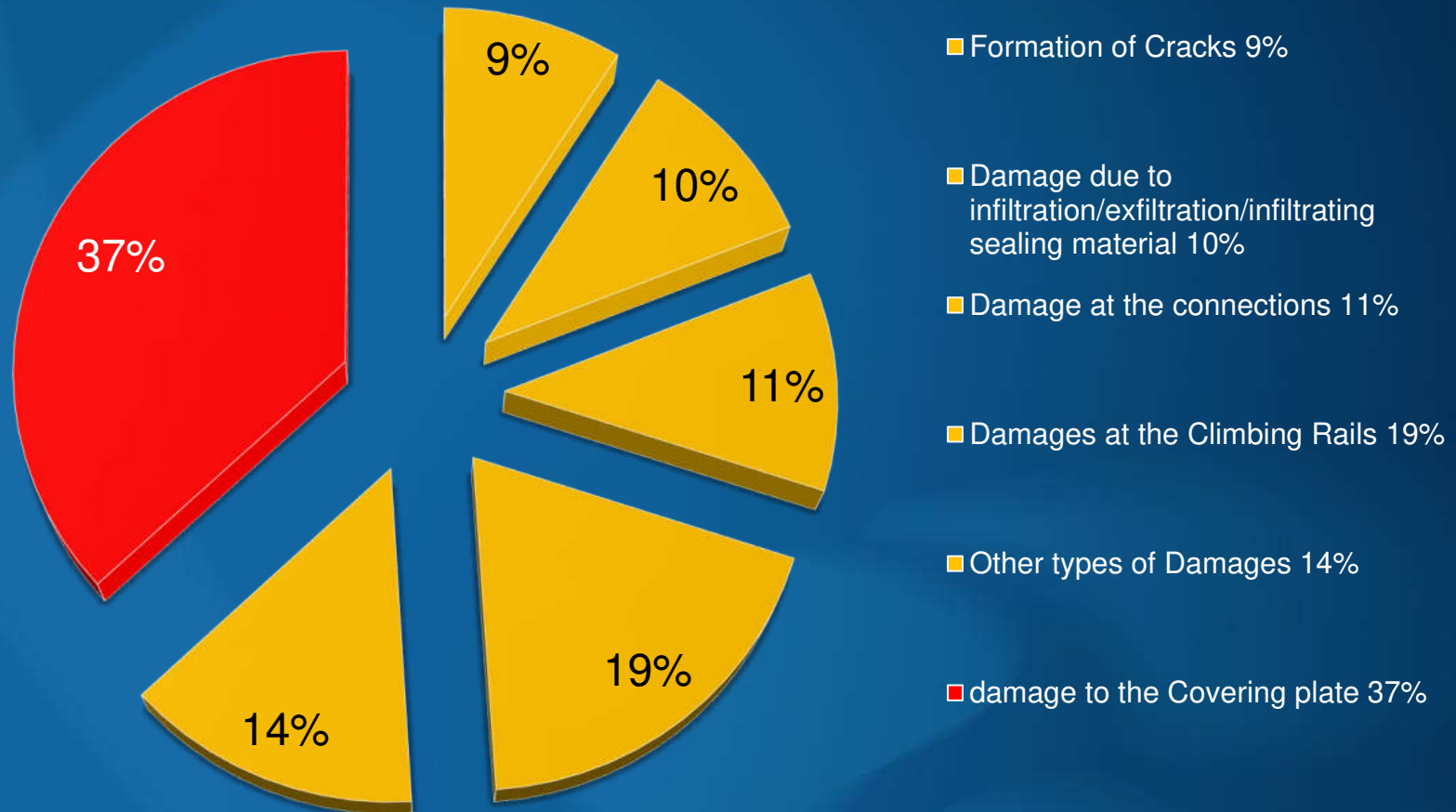


Risk of Accidents due to defective Manhole Covers. The Way out of this crisis

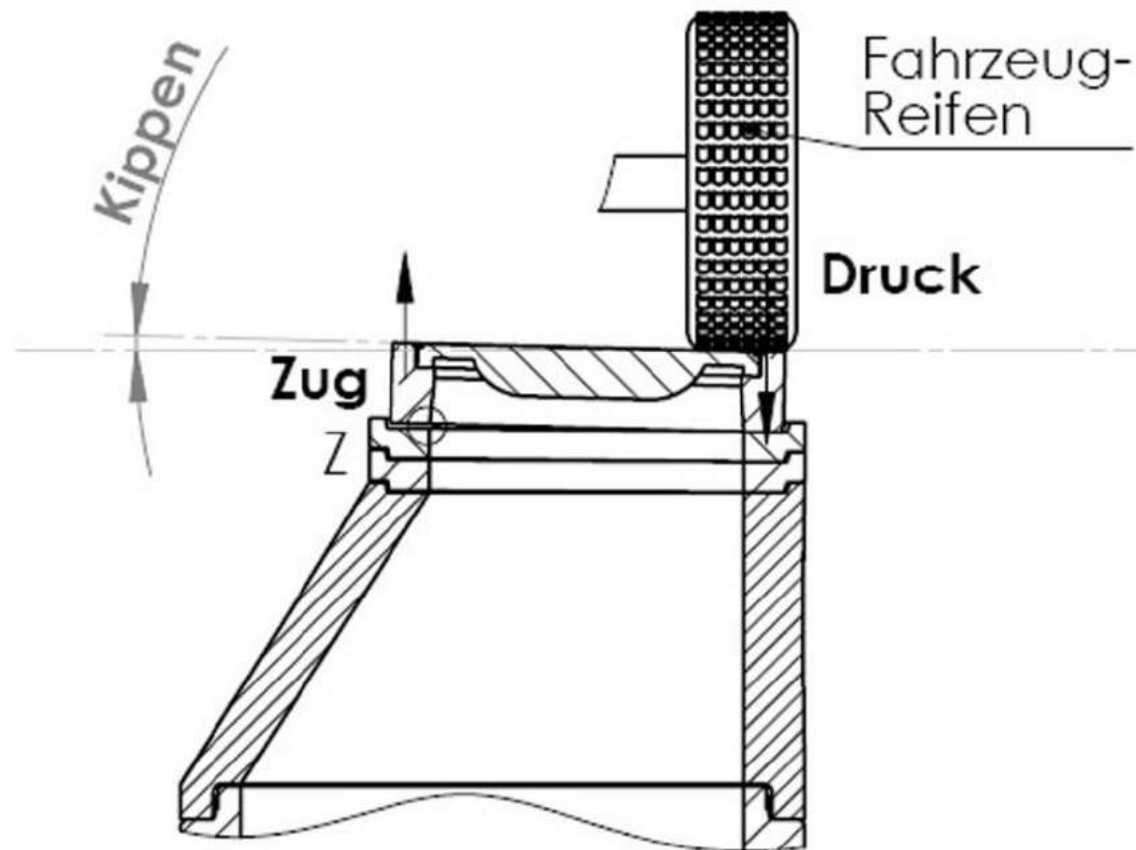


Reasons for the damages in Manhole covers



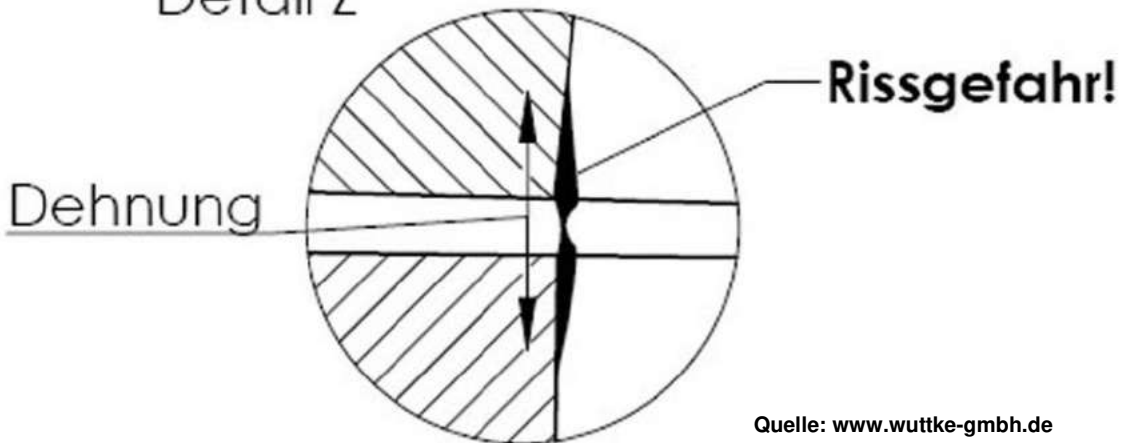
Source: DWA Survey 2009

DWA Survey 2020: 11,5 % Damages to the Manhole covers



Impact of traffic / Load transfer

Detail Z



Damage patterns

- Traditional Manhole Covers -



Cracks in Asphalt

Manhole Cover is too low





**Material damages
Manhole Cover is higher than the road**



Loose Frame – Very high risk of accident

What are the Reasons ??

Wooden wedges in the balancing area!!!







1.3.130.

Uncover the shaft cover.

Lay the shaft cover flush and over the entire surface using at least MG III mortar or equivalent in accordance with DIN 1053.

Set cover and support rings to new planned height step by step as construction progresses.

2,000 pcs



Waldschlößchenbrücke ca. 635 m



Gullydeckel locker

Waldschlößchenbrücke schon wieder kaputt

Kurz nach Fertigstellung!!!

Quelle: BILD.DE

Manhole cover, D400, round (conventional)

Frame and cover made of solid cast iron according to DIN 19 584, DIN 1229, DIN EN 124 with ventilation openings, according to RAL quality mark duct casting RAL-GZ 692, with damping insert in frame and cover (elastomers), without hinges or other locking devices (no light covers) , with dirt trap made of galvanized sheet steel, heavy-duty design according to DIN 1221 supply and installation

class: D400

clear width: 600 mm

construction height:

including the required support rings, in min. MG III mortar (early high-strength, shrinkage-free, frost-, de-icing-salt- and sulfate-resistant, impermeable to water, low in chromate according to TRGS 613), laid full-surface and flush with the step iron walkway, Height compensation < 240 mm, max. 3 support rings,

Support rings can also be grouted using hose formwork and special grouting mortar (with high initial and final strength, low shrinkage, tested frost de-icing salt resistance according to CDF and CIF methods), including all materials.

It is mandatory to grout the manhole cover using hose formwork and special grouting mortar (with high initial and final strength, low shrinkage, tested frost de-icing salt resistance according to CDF and CIF methods), including all materials.

First place the manhole cover provisionally and then, as construction progresses, set it step by step to the planned height.

Grouting of the joint between cover frame and asphalt with hot bitumen, i.e.

- Cutting the joint,
- Cleaning of the joint,
- application of primer,
- grouting of the joint.



Balancing rings are fixed in dry conditions



Balancing Area are made by bricks



DIN19596 600-B125-EN124



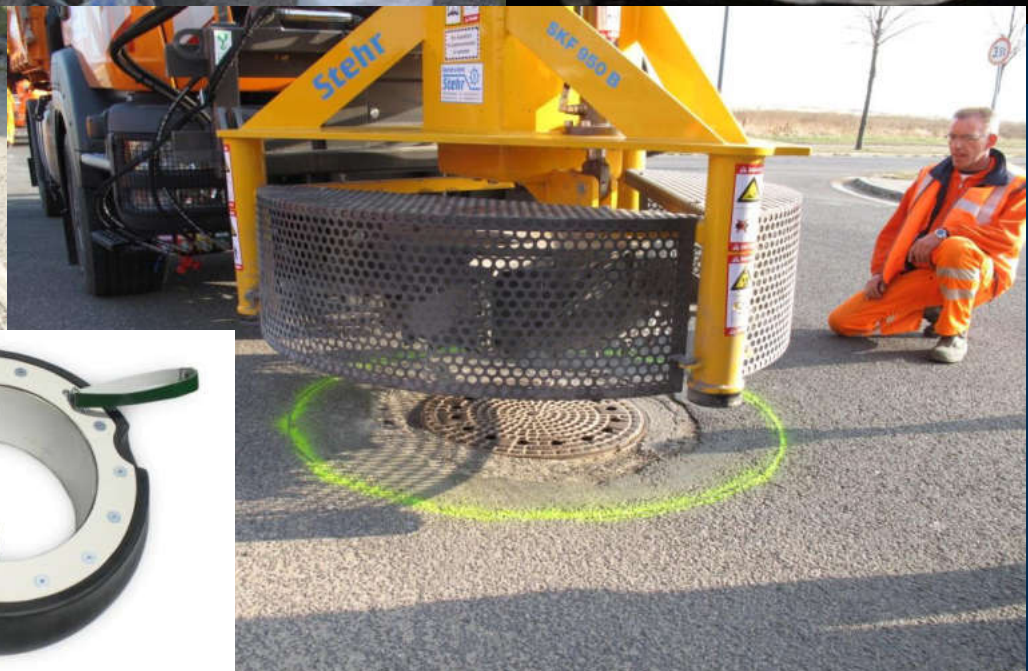
???

Building without a outer frame !!!



Professional Installation

- Standard Manhole Covers -









System BUDAPLAN H4/H6







System BUDAPLAN



ERGELIT-superfix 10

gründlich mit Wasser
insultieren.
Vor der Arbeit geeignete Schutzkleidung
tragen.
S 37/39 Bei der Arbeit geeignete
Schutzbrille/Schutzbrille mit
Schutzbrille/Schutzbrille tragen.

ERGELIT TROCKENMÖRTEL UND FEUERFEST GMBH
Wolffsweg 10 - 11 - D-36334 Aelsfeld-Schwarmöd - ☎ +49 (0) 56 31 19 46 - 0

Chromatarm nach TRGS 613
GHScode: ZP 1

5 36 Podziva vrbuj očesami lukavice a
očesni brle neba (slaboprijetlji list
nikakor govor)

5 37/39 Podziva vrbuj očesami lukavice a
očesni brle neba (slaboprijetlji list
nikakor govor)

5 26	Ne respirar el polvo.	5 27	Evitar el contacto con los ojos.
5 27	Evitar el contacto con los ojos.	5 28	En caso de contacto con los ojos, lavarlos inmediatamente y abundantemente con agua y jabón o a un especialista.
5 28	En caso de contacto con los ojos, lavarlos inmediatamente y abundantemente con agua y jabón o a un especialista.	5 29	Usar ropa que proteja y protección para los ojos.

ERGELIT-superfix 10 Montagemörtel

hochfließfähig
frühhochfest
Größtkorn: 1 mm

Anwendung:
Schachtkopfdrötle, Einlegen von Ankr.,
Pfeifen, Geländern, Platten.



VERARBEITUNGSANLEITUNG

Verarbeitung:
Entfernen von feiloharten Stoffen,
Schmutz, Öl und losen Beständen.
Durch Vorräumen die Fläche, die zu
arbeiten sein soll, gut durchschieben
sollte, sorgfältig säubern und
abstreifen.

Mischen: ca. 1 Minute
Max. 4,3 l Wasser pro 25 kg-Sub-
stanz. ERGELIT mit einem geeigneten
Mischer, -schrauber und -wischer
mischen. Die Mischung muss innerhalb
von 10 Minuten verarbeitet werden.



ERGELIT-superfix 10

high flow
high early strength
max. grain size 1 mm

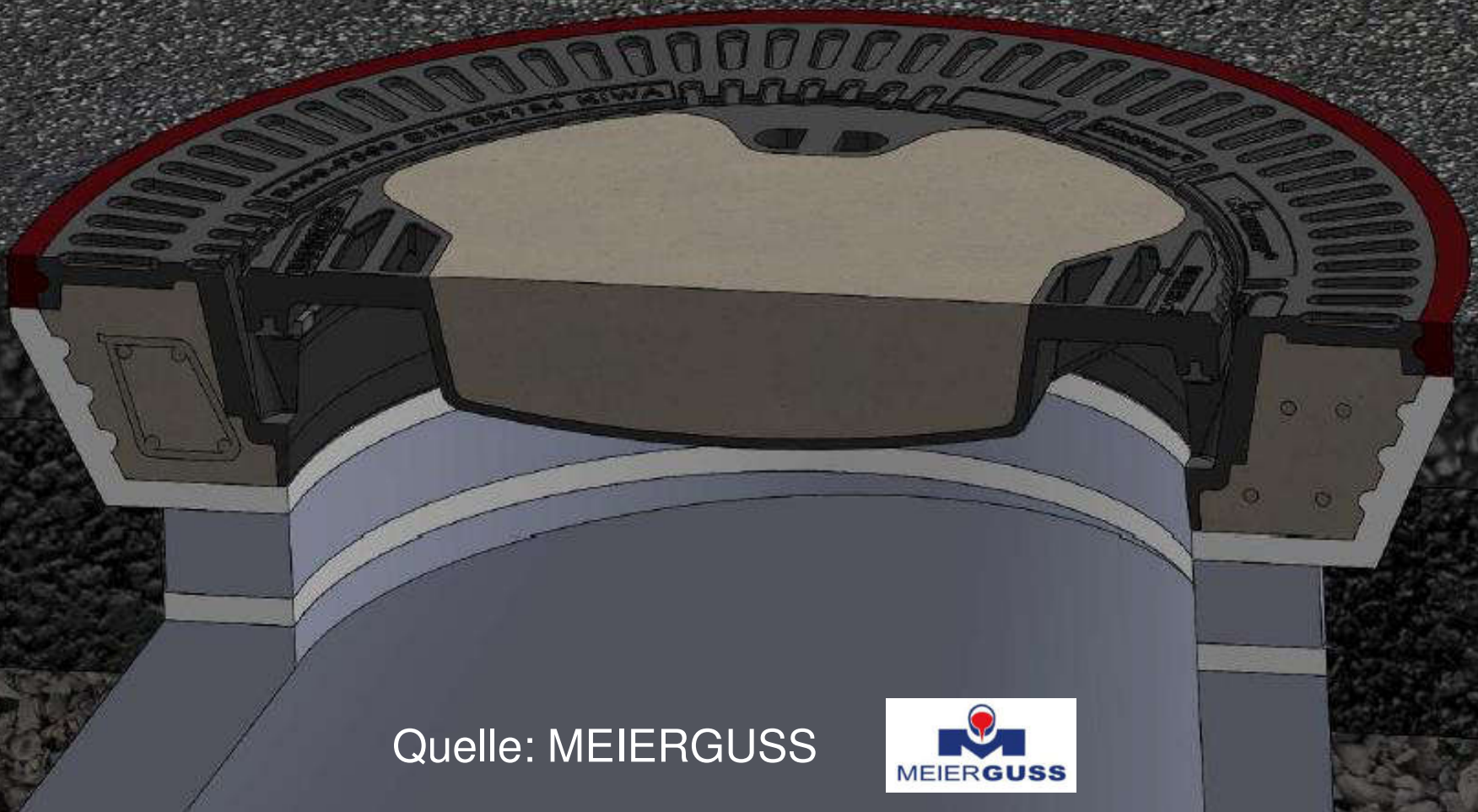
Application:
Schachtkopfdrötle,
Einlegen von Ankr.,
Pfeifen, Geländern, Platten.

Processing instructions:
Removal of hard materials,
dirt, oil and loose deposits.
Through pre-cleaning the area
to be worked, clean and
remove thoroughly.Mixing: approx. 1 minute
Max. 4.3 l water per 25 kg
substance. ERGELIT mix with
a suitable mixer, drill and
scraper. The mixture must
be processed within 10
minutes.

D 500 EN







Quelle: MEIERGUSS



Manhole Cover without Asphalt







Damage patterns

- Rollable Manhole Cover-

Quelle: ACO

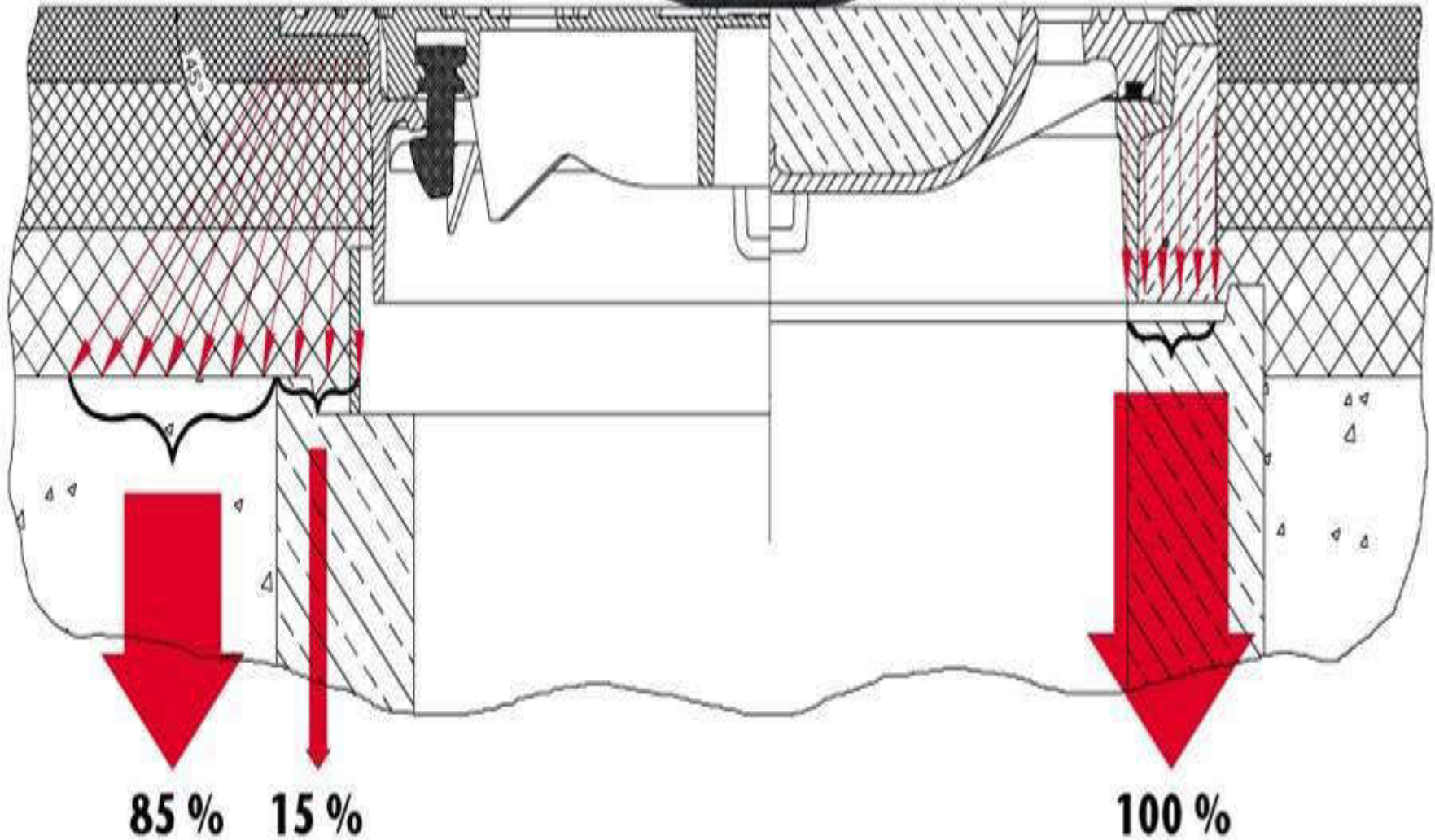


NEU

Multitop® System Bituplan®

ALT

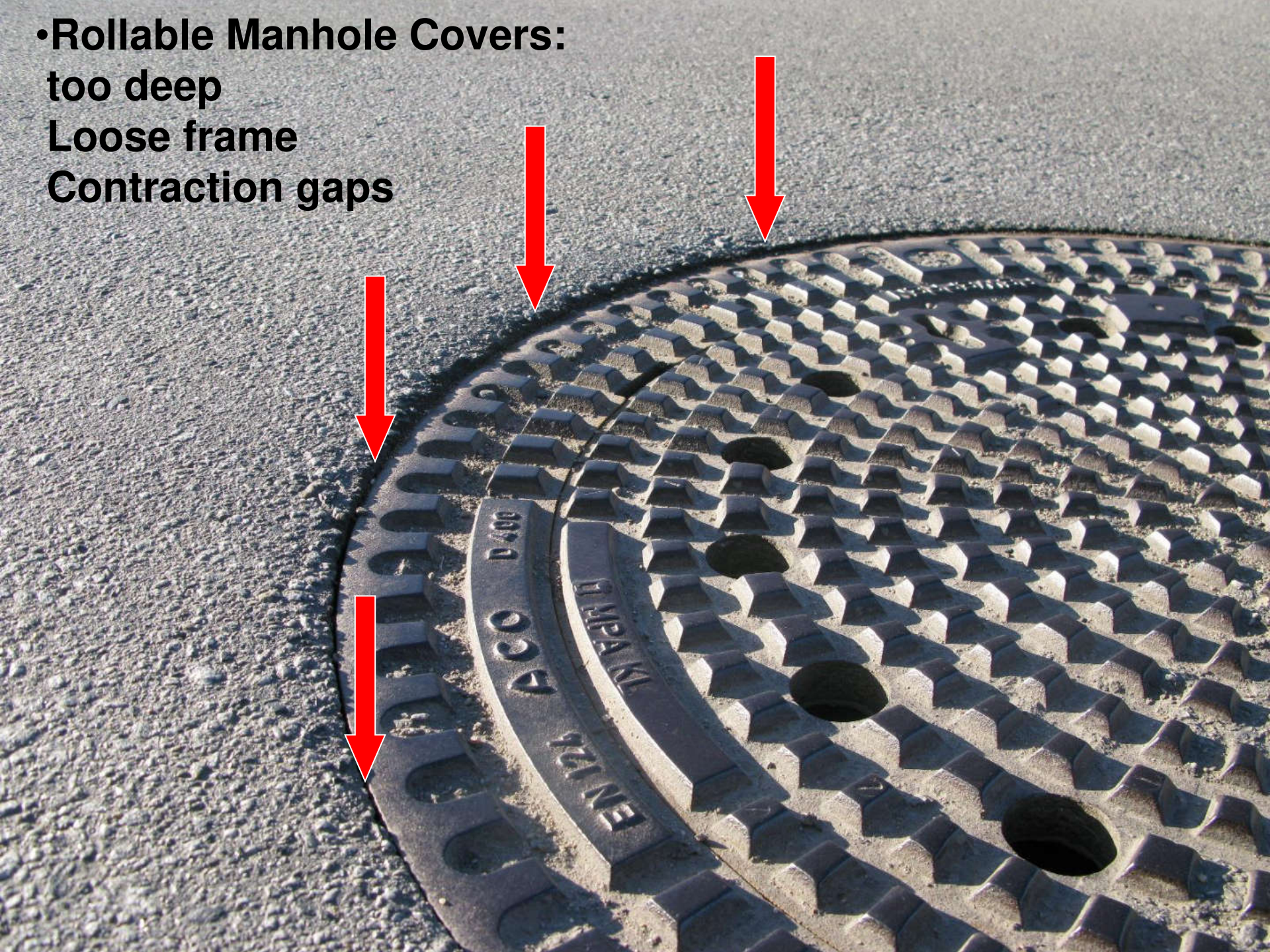
Schachtabdeckung DIN 19584

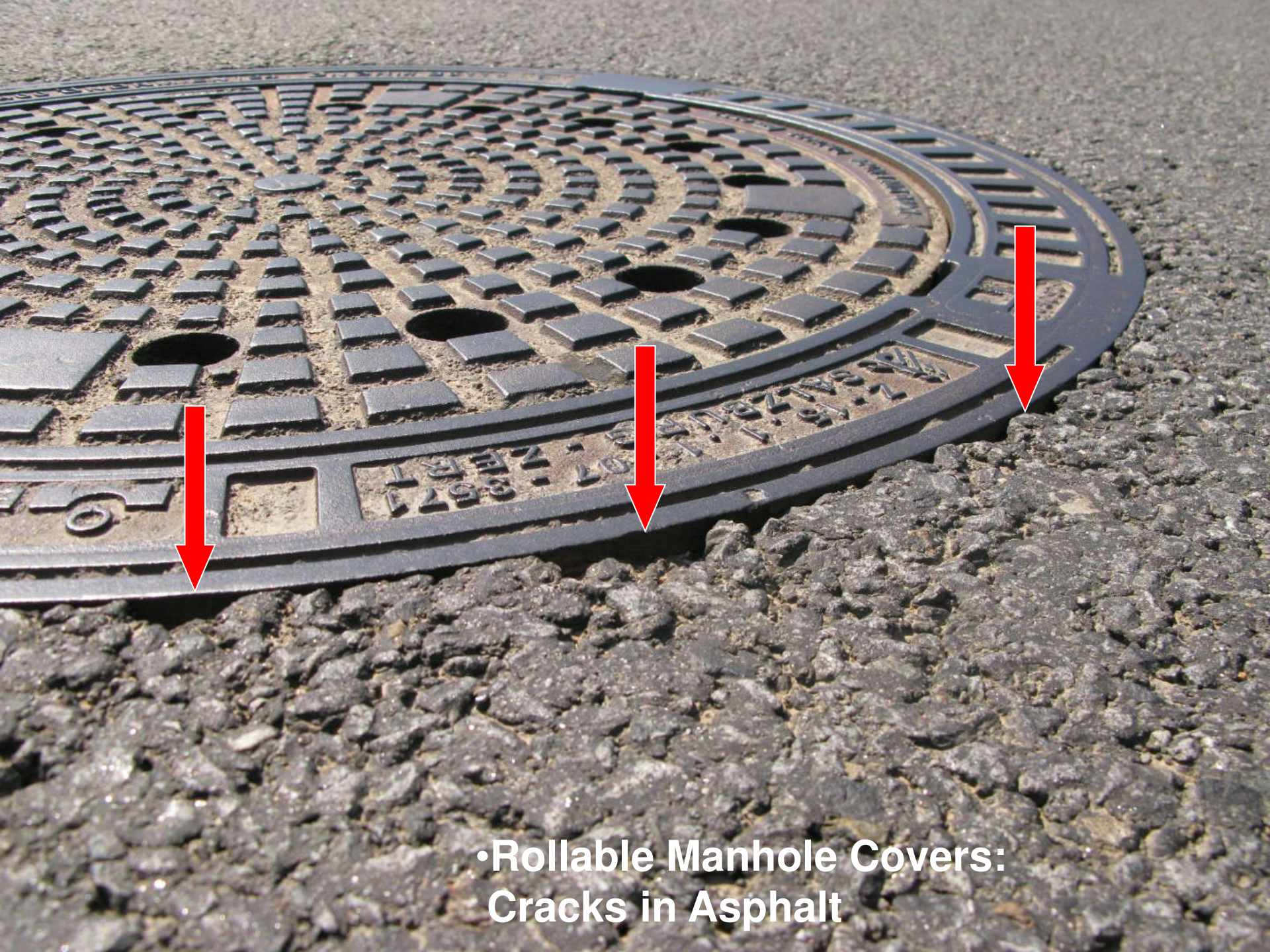




Where is the problem?

•Rollable Manhole Covers:
too deep
Loose frame
Contraction gaps



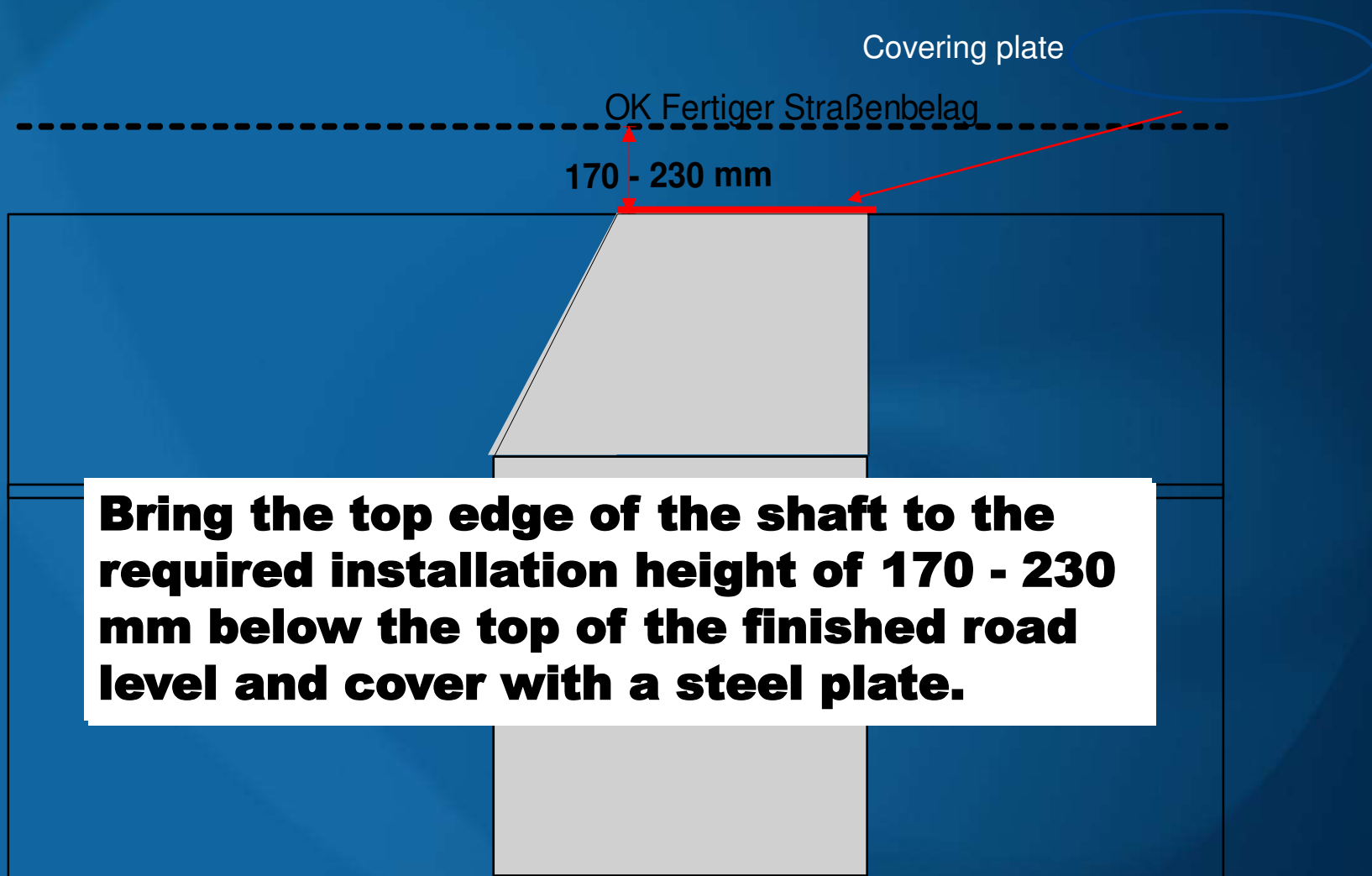


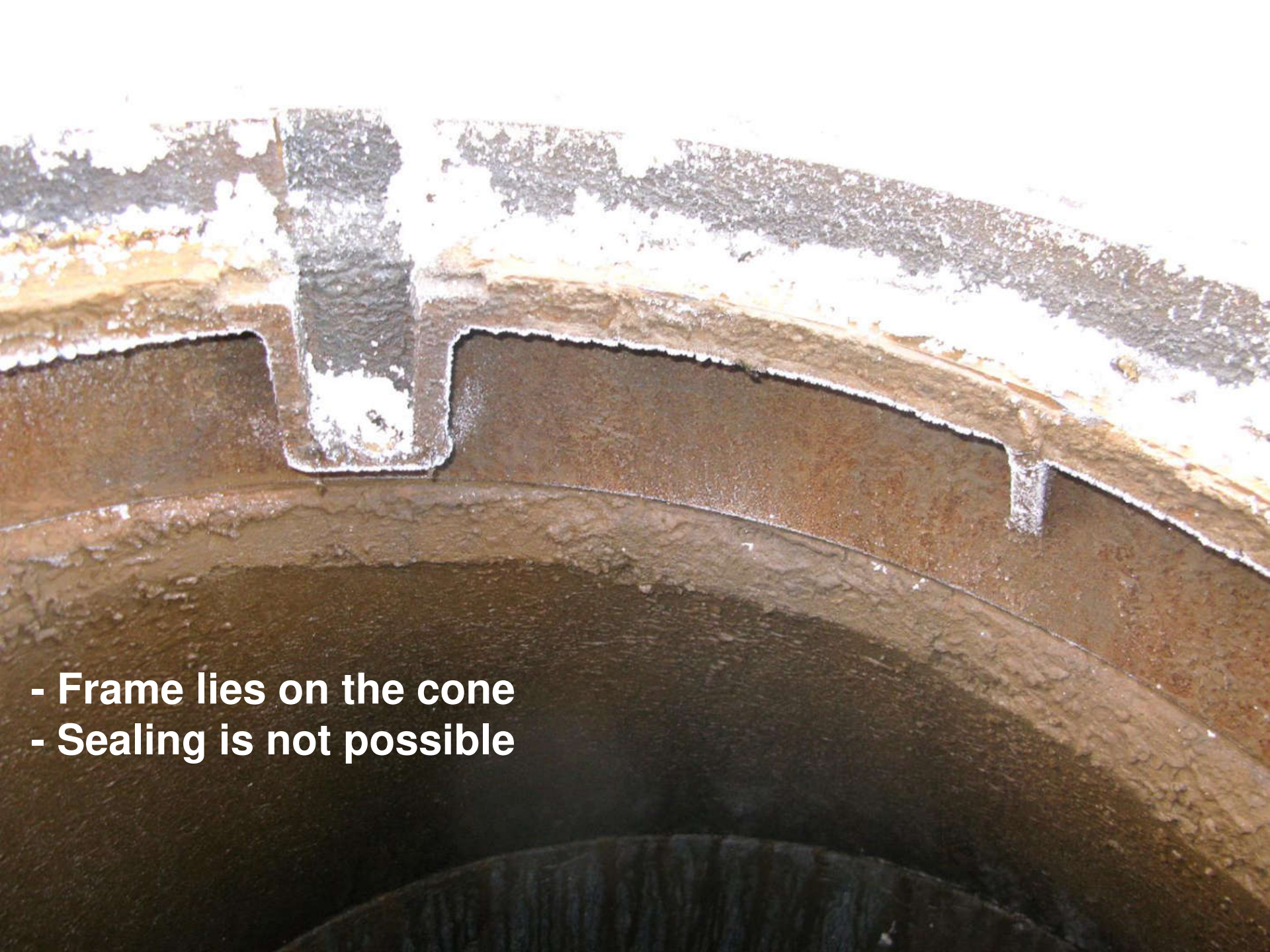
•Rollable Manhole Covers:
Cracks in Asphalt



Professional Installation

- Rollable Manhole Covers -





- Frame lies on the cone
- Sealing is not possible







Quelle: BECK







Manhole Covers in Dresden





B: Statisch-mechanische Analyse

Normalspannung

Typ: Normalspannung(X-Achse)

Einheit: MPa

Globales Koordinatensystem

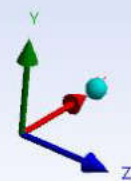
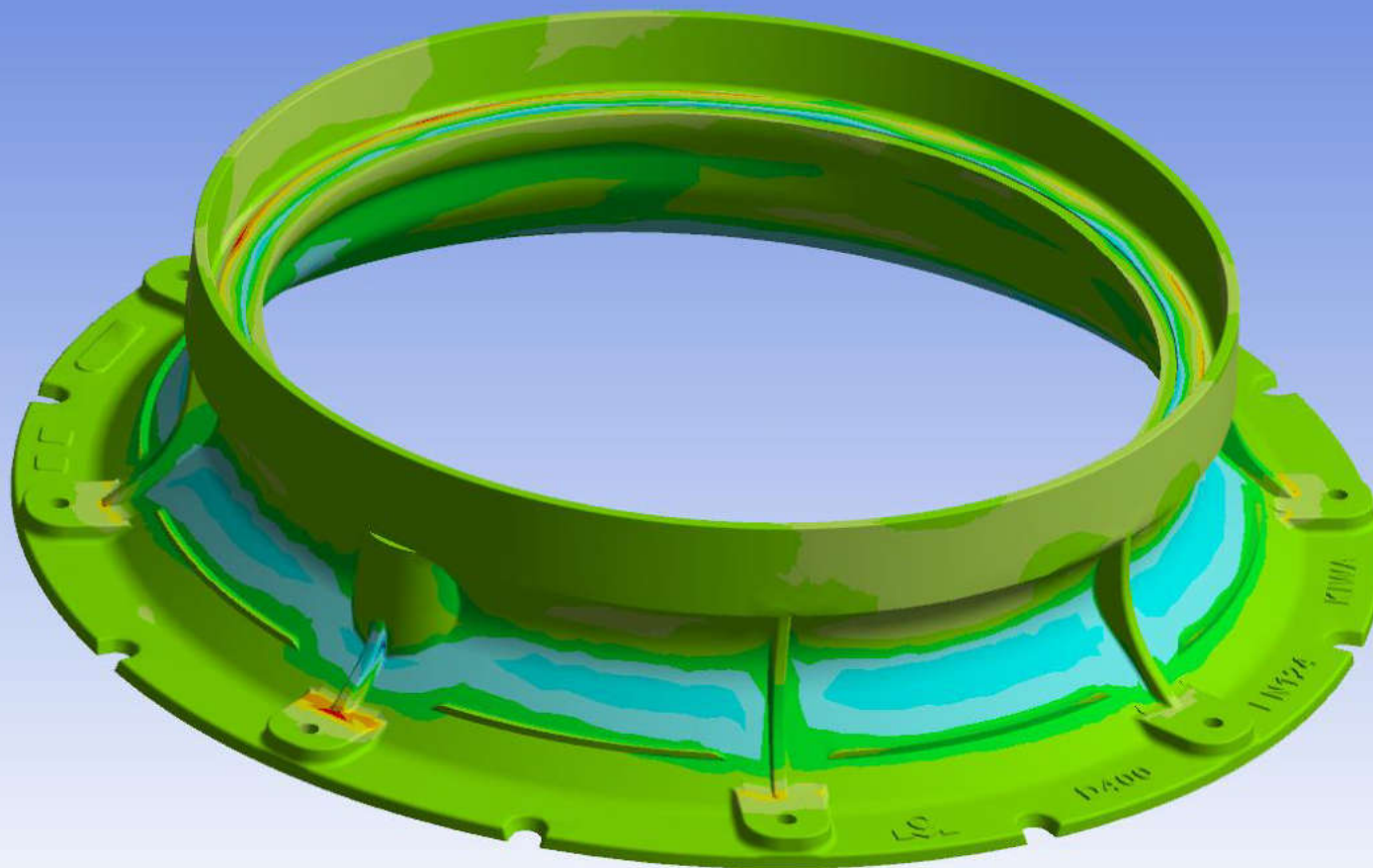
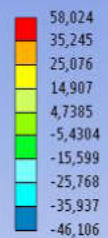
Zeit: 1

Benutzerdefiniert

Max: 182,22

Min: -513,33

11.02.2015 09:58



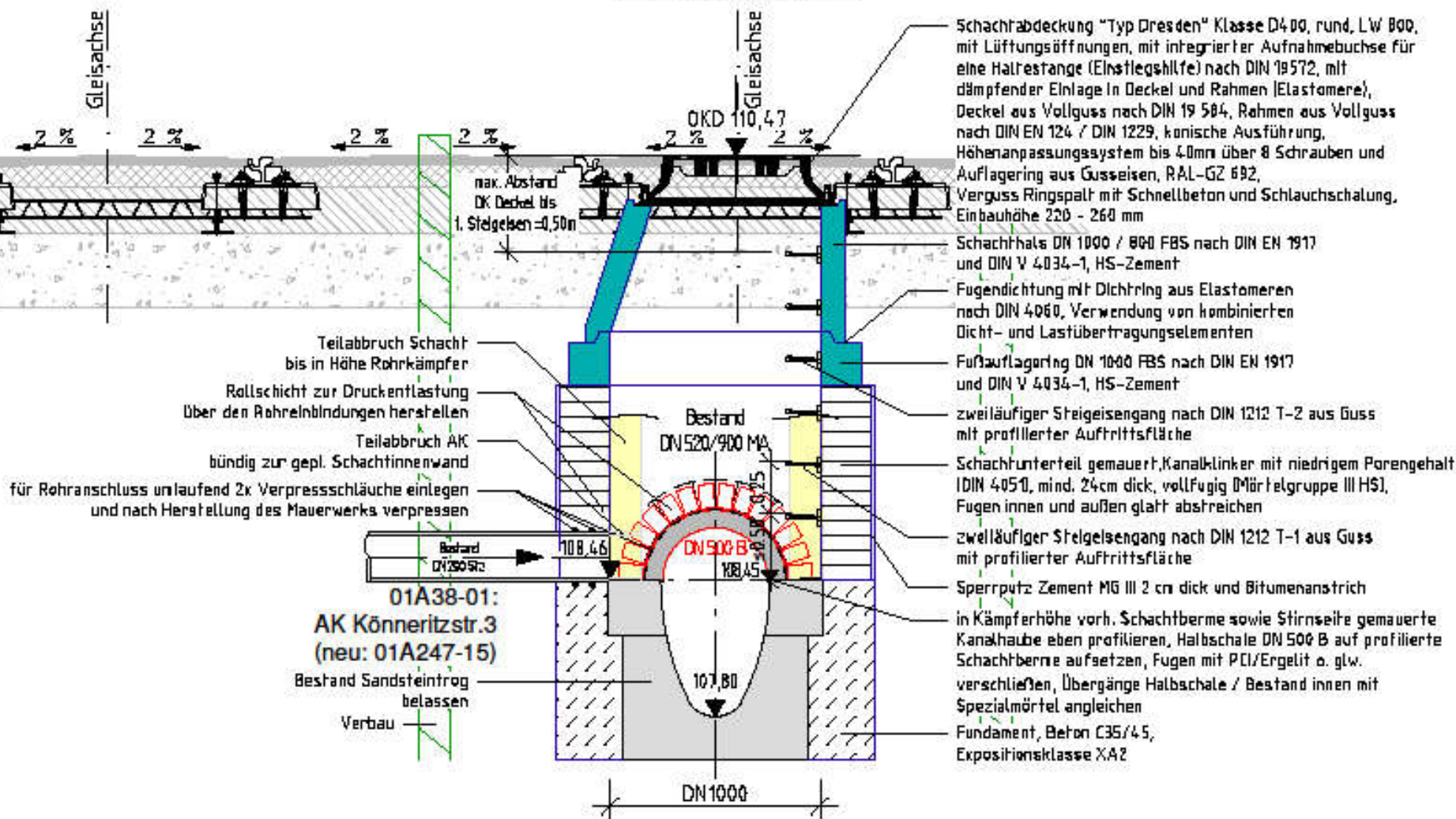








Schnitt A-A

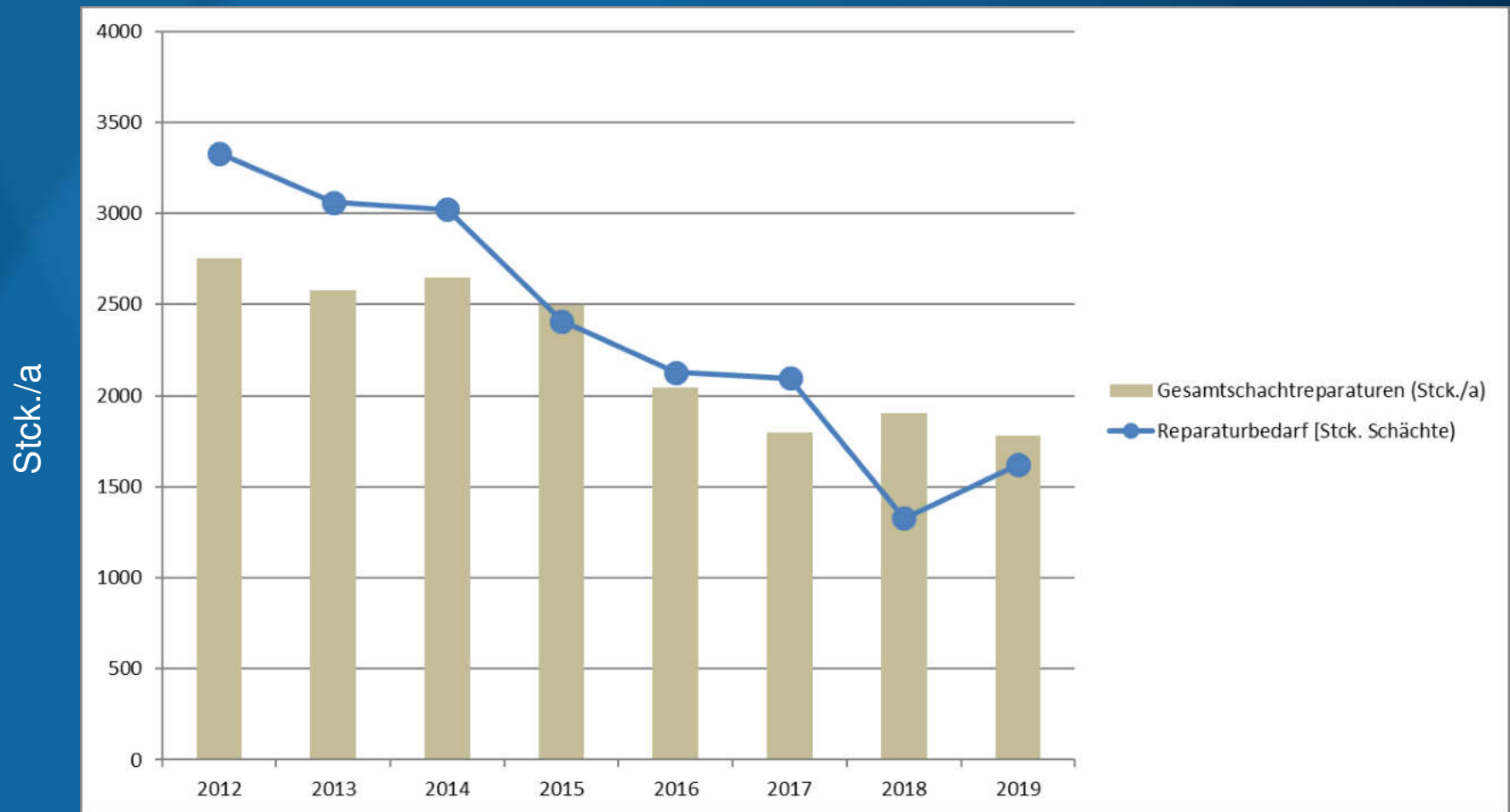


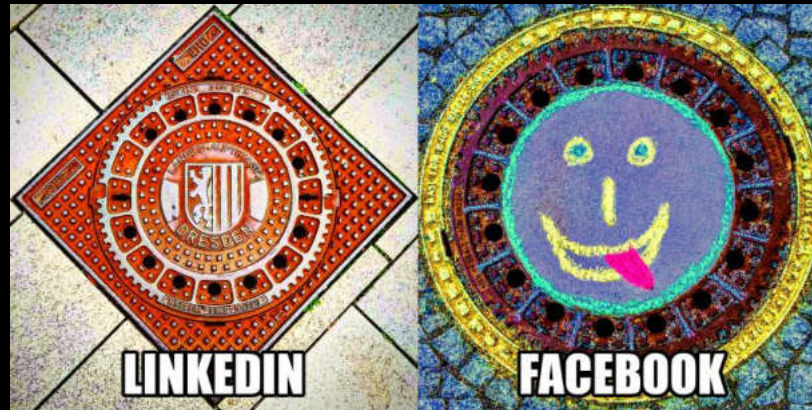
INGENIEURBÜRO
KOMPLEXER VERKEHRS- & TIEFBAU





Manhole Repairs and Necessity for Repair





 daniel.kalweit@se-dresden.de

 [deckel_kalle](https://www.instagram.com/deckel_kalle)