

Powered quick couplers for excavators – Innovative solutions against high accident rates

High accident rates require rapid adaptation of EN 474

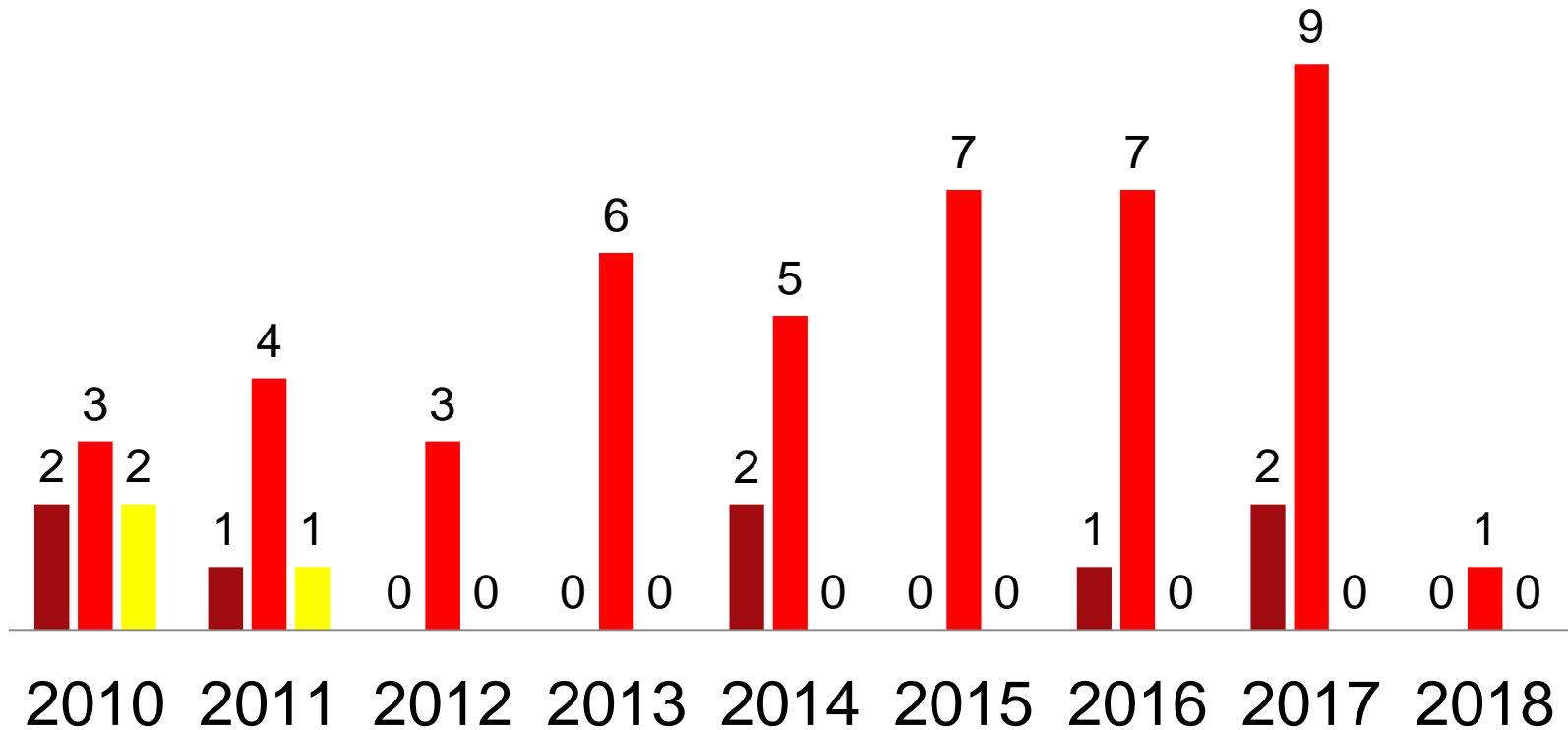
Dresden, 2019/06/13

Horst Leisering – Germany - BG BAU

- Due to the new technologie (powered quick couplers) attachments such as backhoe buckets, grabs, vibratory plates etc. are changed up to 100 times a day using powered quick couplers.
- The machine operator must check each and every time that the quick coupler is properly locked by means of visual inspection and testing in a safe area close to the ground. This is not affordable by a human being.
- This is why often near accidents are occurring. In addition fatal and serious accidents occur again and again.

Accidents quick couplers

■ fatal ■ seriously ■ slightly



Accident investigation quick couplers by BG BAU-Germany (only serious and fatal accidents)

Observation period 01/2010 – 06/2018

61 Accidents investigated

56 Accidents QC on hydraulic excavators

5 Accidents QC on wheel loaders (not included in following statistics)

What is the problem?

- The large number of changes and the associated possibilities of incorrect interlocks increase the probability of accidents.
- Requirements for quick couplers are described in the harmonized standard EN 474 „Earth moving machinery – safety“
- In this standard the deliberate control by the machine operator is the only protective measure against the fall of the attachment.
- In the following the engagement process is shown in detail:





Foto: BG BAU



Foto: BG BAU



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Test No 1



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Reasons for accidents:

- Not engaged correct
 - Not engaged
 - technical fault

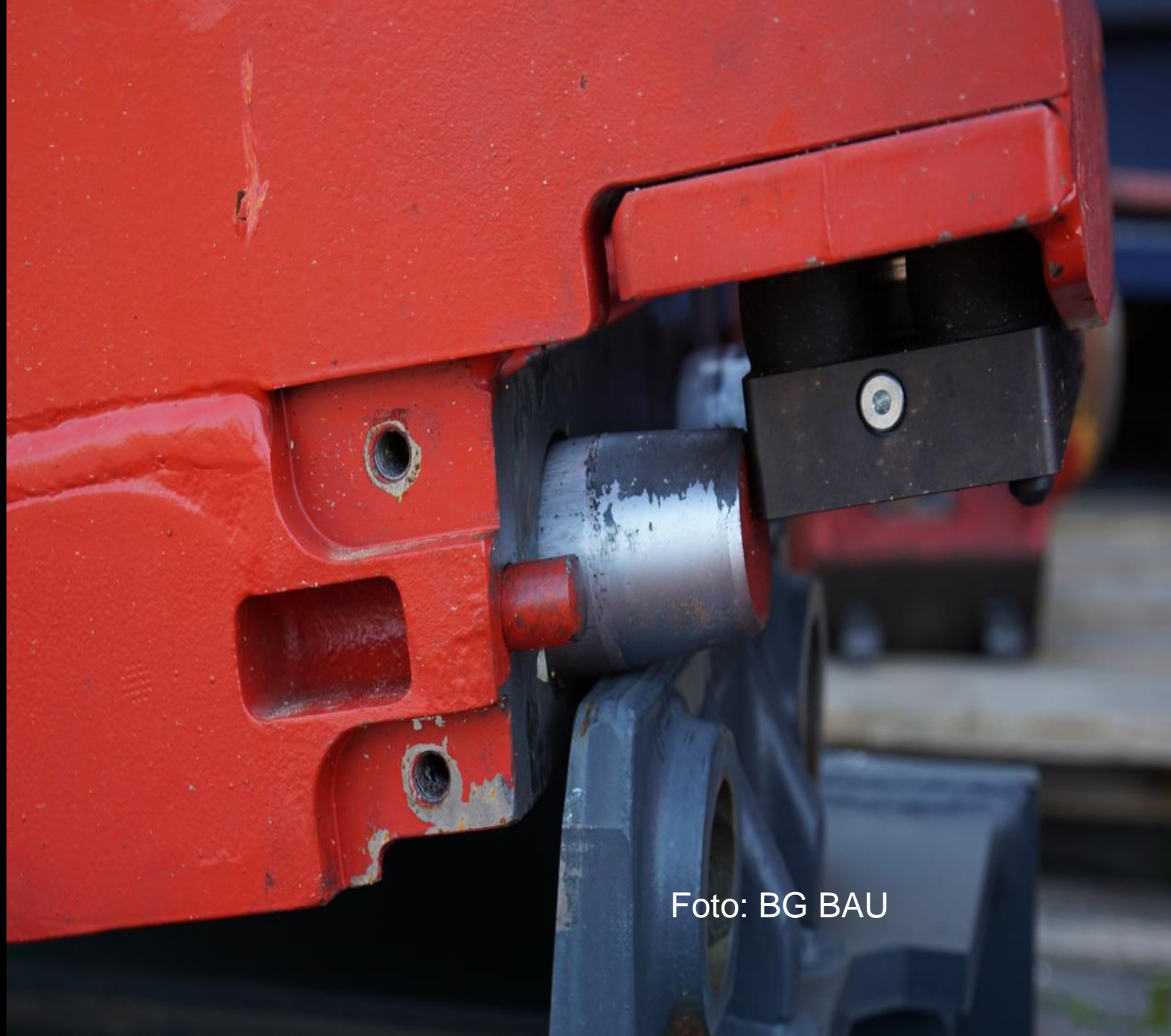


Foto: BG BAU



Foto: BG BAU

The relevant standards are not in conformity to the Machinery directive

- Technical solutions to improve safety are available from 2 t up to 65 t
- All of the relevant manufacturers offer solutions as an option: Engcon, Holstein Apparatebau, Lehnhoff, Liebherr, Martin, OilQuick, Rädlinger, Riedlberger GmbH, Rototilt, SMP Parts, Steelwrist, Wimmer, Winkelbauer, ..
- As well the existing EN 474 as the new ammendment with reference to ISO 13031 as the full revised EN 474 leave control exclusively to the machine operator. No technical measures are foreseen to protect against falling of attachment.

Examples for existing solutions: BG BAU

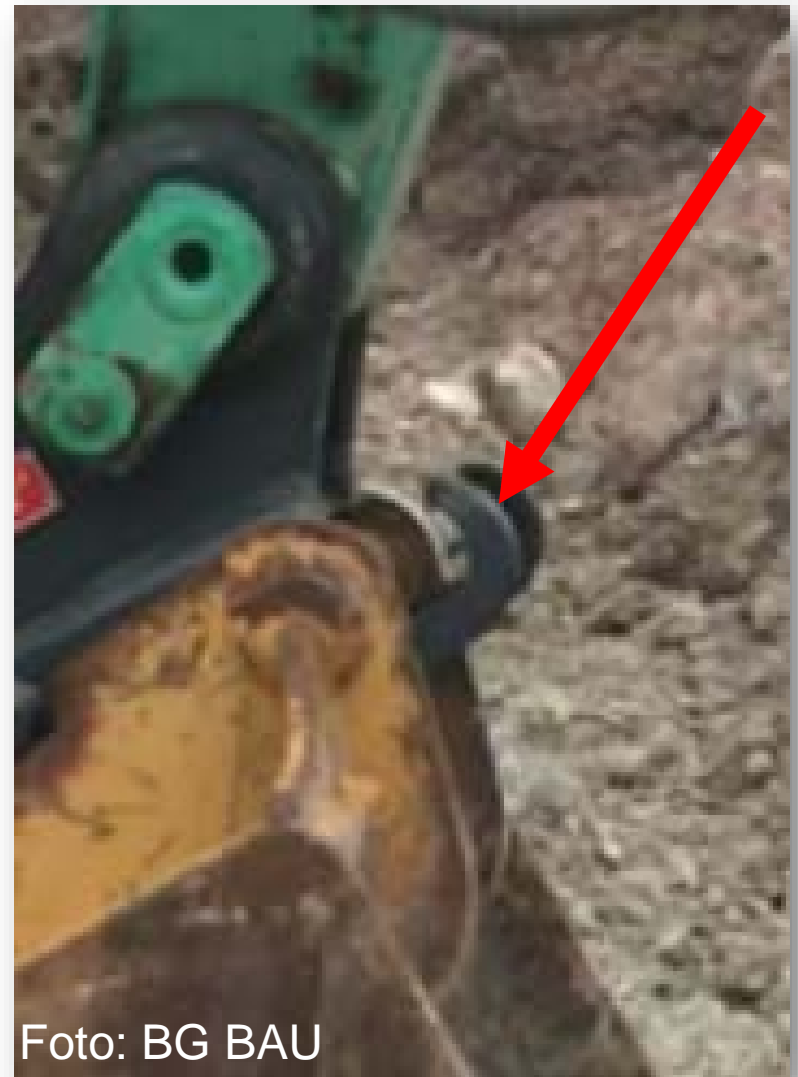


Foto: BG BAU



Foto: BG BAU

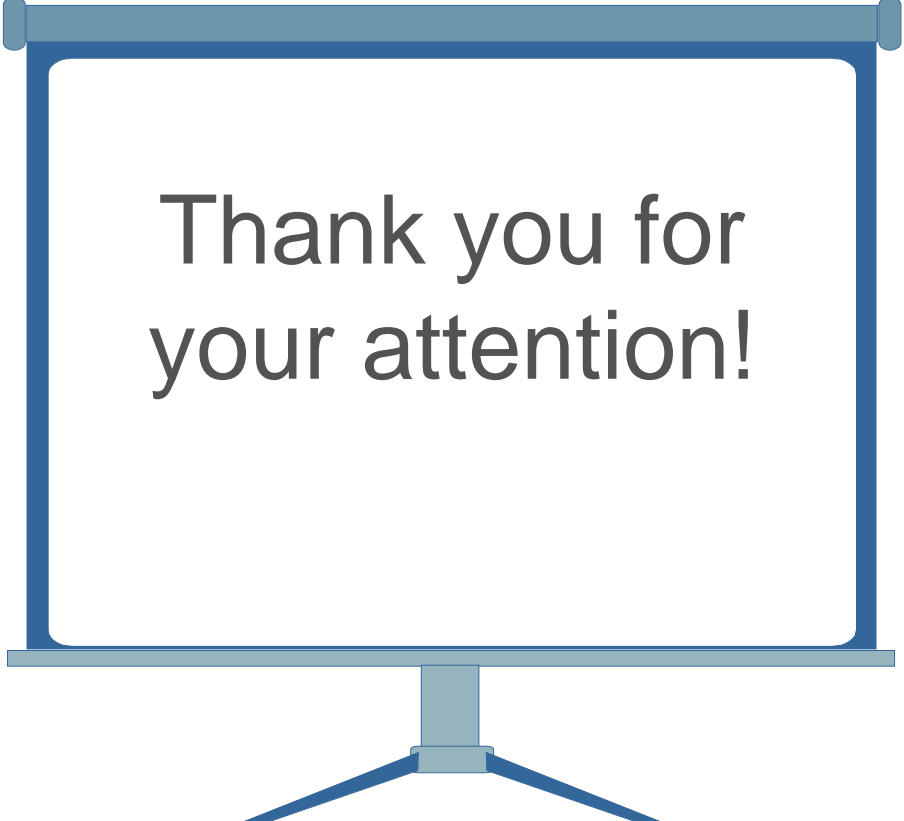
Examples for existing solutions: BG BAU



The possibility of a formal objection is taken into consideration by Germany

In the CEN TC 151 WG1 an adhoc WG is installed

Germany asks AdCO and Machinery WG to request CEN to improve the standard on this point as soon as possible.



Thank you for
your attention!