

Personal fall protection equipment when using boom-type work platforms and multi-functional equipment.

Effective prevention of fall risks in work platforms.

State of the art when working on mobile boom-type work platforms is to use a full body harness incorporating an adjustable lanyard with energy absorber connected to an anchor device as specified by the manufacturer.

Basic situation:

When using work platforms there is a hazard of persons falling from the work cage due to:

Whiplash or catapult effect from

- starting
- bounding
- material dropping
- jamming / getting stuck of the work cage
- unevenness of the ground when moving the platform
- climbing over the handrail and due to technical defects such as → swinging down of the work cage.

Remaining residual risks

- Use of the anchor point in the work cage for fall arrest systems as the anchor devices provided by the manufacturer are only designed for restraint systems (acc. to EN 280 = 3 kN).
- Turnover of the elevating work platform in the wake of the fall arrest process due to incalculable forces of a catapult / whiplash effect.

Relevant Standards and Rules

EN 280: Mobile Elevating Work Platforms - Design calculations - Stability criteria
- Construction - Safety - Examinations and tests

D-A-CH-S is an international group of Experts from Switzerland, Germany, Austria and South Tirol (Italy) aiming at transnational harmonization of rules and regulations on fall protection equipment at elevated workplaces.



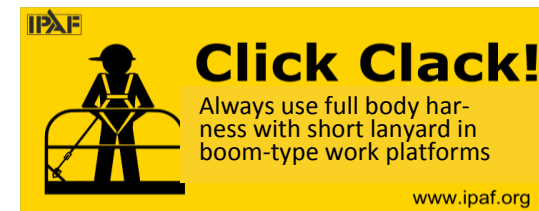
Selection of the suitable personal fall protection equipment (PFPE)

- Observe data specified by the manufacturer of the equipment!
- In boom-type platforms, the use of personal fall protection equipment (PFPE) must be mandatory due to the whiplash / catapult effect, which cannot be excluded.
Thus, only boom platforms with anchor devices specified by the manufacturer may be used for PFPE.
- A fall over the railing must be excluded, since the resulting impact force might cause overturning of the platform or overloading of the anchor point.
Therefore, the lanyard must be kept as short as possible with respect to the cage geometry and the work to be carried out.
- Use lanyards adjustable in length with energy absorbers or guided-type fall arresters (tested for edge load with a redirection of 180°)
Maximum system length < 1.80 m
- When moving the work cage, always ensure shortest possible securing means (e.g. anchor point knee rail to chest eyelet) → Compare Figure 1 & catapult video under www.bauforumplus.eu/absturz
- A rescue concept must always be provided for → Emergency descent or substitute measures / rescue from heights must be ensured



Figure 1: Protection as short as possible when moving the work cage (chest eyelet / dorsal)

Please note: Manufacturers of vertical platforms, (e.g. scissor-type work platforms), may specify the use of PFPE in their operating instructions (compare: work platform video under www.bauforumplus.eu/absturz)



⇒ See as well D-A-CH-S Factsheet Climbing over (accessing and exiting)

Basic situation:



Figure 2: Fall sequence from telescopic work platform due to catapult effect (whiplash effect) and use of a lanyard which is too long → Videos under www.bauforumplus.eu/absturz

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Best practice / safe examples



Figure 3: Securing means as short as possible when moving the work cage
→ adapt rope adjuster!



Figure 4: Always use the anchor points as specified by the manufacturer of the work platform (> 3kN). Position anchor point: Near to ground, maximum height medium rail. Never secure to the railing!



Figure 5: Caution: shortest possible securing means also during work.
Maximum length of lanyard = **1.80m**