

heightec – Falling object protection

Tool tethers

Dropped objects are a major hazard and a potential risk to anyone who works at height.

heightec's new tool tether range, ToolTec™, allows the risk to be controlled effectively. The range is load tested and certified.

The elasticated webbing shortens the lanyard when not under load to reduce the risk of entanglement; retracting by approximately 50%. The lanyard's elasticated nature requires a force <1kg to extend it to its full length, to help reduce user fatigue.

Tool tethers have a working load limit (WLL) of 4kg. A range of lengths are available:

- 1.3m (MTTE130)
- 1.7m (MTTE170)
- 2m (MTTE200)

Falling object protection

The law

The law¹ requires employers to take measures to prevent the fall of any material or object by keeping workplaces at height clear of loose material or objects (so far as is reasonably practicable). This can be achieved by practicing good housekeeping and ensuring such objects are not present in the first place for. Thereafter, where it is not reasonably practicable to prevent the presence of material or objects, there is a requirement to prevent a person being struck by falling materials or objects by. This can be achieved by providing barriers, toe boards, etc. so that loose materials or objects do not roll off a place of work at height (or become inadvertently knocked off). Other measures may include safety nets, scaffold fans, etc. However, this is mitigation and recognises that a falling object has not been prevented.

The law² requires, also, employers to implement exclusion zones; although preventing a person falling³ and preventing falling objects⁴ take precedence over this requirement. It may not always be reasonably practicable to prevent falling objects, e.g. parts of a demolition site, and there may be a need to designate a danger area around or underneath such work so that persons not engaged in the work are prevented from entering the area. This may be with physical barriers, e.g. fencing, which prevents a person going beyond them but could also include cones and tape for short duration tasks. Such measures should include unambiguous marking or instruction which conveys that it is dangerous to enter, e.g. warning signs.

1 Work at Height Regulations 2005 (WAHR), SI 2005 No. 735 (Reg. 10, Falling objects)

2 WAHR, Reg. 11, Danger areas

3 WAHR, Reg. 6(3)

4 WAHR, Reg. 10

Falling object risk management

The risk presented by falling objects can be managed by applying a hierarchy of controls (see Figure 1), with the level of protection reducing as the lower levels are reached.

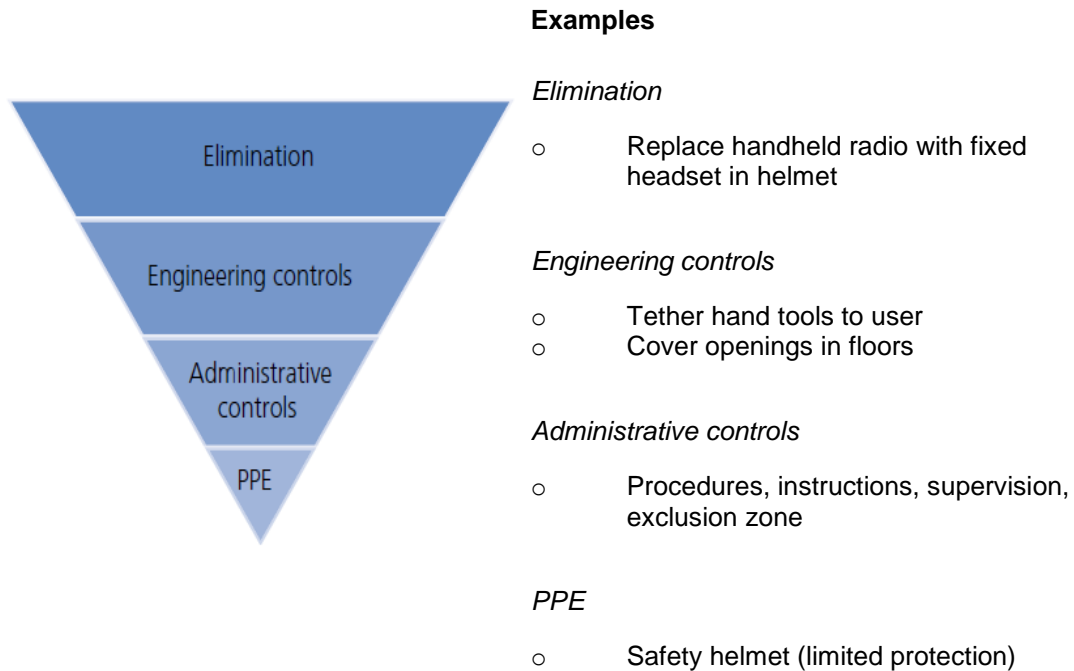


Figure 1: Hierarchy of controls for falling objects⁵

Taking each level of the hierarchy, in turn:

Elimination

The elimination of a hazard - or avoidance - must always be the preferred option, and it is most effectively achieved during the design phase. Designers should aim to eliminate these hazards where possible.

⁵ Good practice guideline, *Working at height in the offshore wind industry*; 1st edition, November 2014, Published by the Energy Institute, London, ISBN 978 0 85293 720 4

Engineering controls

If falling object hazards cannot be eliminated, engineering controls are the preferred approach to risk reduction. This method involves the use of equipment to reduce the potential for objects to fall (or, preferably, prevent them from falling), or to reduce the risk if an object does fall. Examples include:

- temporary covers being placed around and/or over openings;
- work clothing has pockets these should be capable of being securely closed.
- tools being transported in securely closed containers, e.g. when being lifted between levels;
- lightweight hand tools, communication equipment, etc. being tethered to the user;
- heavier tools and components being tethered to the structure if work has to be undertaken in a location where they could easily drop; and
- using safety netting to catch tools or equipment that cannot be tethered, e.g. bolts.

These examples can usefully be sub-divided by considering the framework set out by the *hierarchy of fall protection*:

- avoid;
- prevent; and
- minimise the distance and consequences of a falling object, i.e. mitigation.

Some measures are *collective* (and 'passive'), e.g. safety nets. Others are *personal* (and 'active'), e.g. tethers. Tool tethers are not "personal protective equipment" and there is no applicable performance or testing standards; they cannot be CE marked. It is important, therefore, to assess the forces that may be exerted on a lanyard, taking account of the weight of the object being retained, and the situation in which it is to be used.

Administrative controls

Administrative controls (to be used in conjunction with the other controls on the hierarchy) involve providing:

- information and warnings to the workforce about hazards that are present;
- instruction on how to carry out the work safely;
- supervision to ensure that the procedures are being followed; and
- establishing management processes that define how incidents are investigated and the lessons learned.

Examples of administrative controls are:

- hazard awareness, e.g. at induction;
- warning signs, to highlight hazards to the workforce;
- planning activities so as to avoid situations where work is being carried out at multiple levels on a structure simultaneously;
- exclusion zones below areas where people are working;
- high levels of workplace housekeeping;
- operating systems to check that all tools and components have been removed from, or secured in, the work area prior to completion of the task; and
- processes for reporting, investigating and learning from hazardous observations and incidents involving falling objects (and developing a culture in which reporting is encouraged).

The heightec Group Ltd, Lake District Business Park, Mint Bridge Road, Kendal, Cumbria, LA9 6NH, UK

Tel: +44 (0) 1539 728866 Email: info@heightec.com
Fax: +44 (0) 1539 728833 Web: heightec.com



Training division: heightec - The National Access & Rescue Centre - Aberdeen, Birmingham, Kendal, Leeds, London, Kelvedon

Personal protective equipment

The last method of protecting the employee is 'personal protective equipment'. Safety helmets provide very limited protection only, due to the high level of kinetic energy that an object possesses. A safety helmet protects the head only, so other areas of the body are unprotected from falling objects and serious injuries can easily be suffered.

Related WLL tool bags

The following range of bags have rated working load limits to ensure any tools, fixings or fasteners are carried safely and securely. For further details please visit heightec.com.

Heavy duty lifting bag with tool attachments, 30L (BL30)

- Durable, heavy-duty lifting bag with high working load limit.
- Heavy duty bag with a 3-point lift for stability and easy access to contents while it is suspended.
- Solid plastic 'tub' reinforced inner helps protect the contents from sharp objects, spread point loads and increase durability.
- PVC fabric with internal webbing and a draw cord closure.
- Has drain holes as well as brass eyelets for corrosion resistance.
- Marked WLL (25kg) and Unique ID No. for control as 'lifting equipment' (Factor of safety 7:1)

Tool Bag, WLL, 3L (B70)

- Essential tool bag for maintenance and installation work at height.
- Durable PVC outer with soft top with nylon cover drawstring closure
- Waist belt attachment which can be attached directly to the harness (via a connector).
- Working load limit (WLL): 5kg
- Marked WLL and Unique ID No. for control as 'lifting equipment' (Factor of safety 7:1)

Linesman's Bolt Bag, 10L, WLL 5kg (B76)

- Multiple function, robust tool bag designed for overhead line work.
- Durable PVC construction with double thickness base and drain holes.
- Secure, buckled strap attachment to harness.
- Strong velcro closing.
- Marked WLL (5kg) and Unique ID No. for control as 'lifting equipment' (Factor of safety 7:1)
- Multiple attachment points for tools to help prevent dropping objects (Each with a maximum load of 2kg (2kg tool on a maximum lanyard length of 1.45 m))
- Brass drain holes to prevent water retention
- Approx. capacity: 10 litres

Canvas Bolt Bag, WLL (B74)

- Small heavy duty bolt / tool bag for keeping maintenance equipment close to hand.
- Heavy duty durable canvas material, velcro fastening plus integral velcro pocket.
- Brass drainage holes prevent water collecting in wet weather.
- Two rear velcro attachment loops to secure to work belt.
- Dimensions: 36cm x 28cm x 11cm (external measurements)
- WLL: 5kg

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FURTHER READING

DROPS

<http://www.dropsonline.org/>

The Dropped Objects Prevention Scheme (DROPS)⁶ has been active in the oil and gas industry since 1999, and is an industry-wide initiative focused on preventing falling objects; it comprises over 100 operators, contractors, service companies and industry bodies. Their guidance recognises two types of falling object, namely:

- Static: any object that falls from its previous static position under its own weight, such as a light fitting that drops due to fasteners coming loose over time.
- Dynamic: any object that falls from its previous static position due to force applied by a person/equipment/machinery or moving object, such as an object being knocked off a platform, and falling to a level below.

The methods used to manage the risk of falling objects differ depending on whether they are static or dynamic. When preventing static objects from falling, the focus is on engineering controls, such as securing devices or catch nets. The prevention of dynamic falling objects involves the use of work equipment such as tool lanyards, supported by procedures and rules designed to highlight the hazards to the workforce and instruct them how to minimise the potential for objects to fall.

⁶ See <http://www.dropsonline.org> for further information and detailed advice on falling object prevention.