

# Guidance

## Why Product Safety Testing Is Important

It's no secret that the work at height rules adopted in the UK in 2005 were strict in one sense, while still allowing companies a bit of flexibility in how to keep their workers safe. In the area of dropped tools and other objects, the law does not specifically spell out how items are to be secured at height. Neither does it specifically state what constitutes a proper safety device and what does not. The law does clearly say that companies must take "all reasonable precautions to avoid dropped items whilst working at height."

The ambiguity of the regulations are such that it's very easy to get yourself in trouble if there's ever a workplace accident with dropped tools. Therefore, when you purchase your safety equipment it stands to reason that you'd want products rated safe under the most extreme conditions in order to maximize overall safety. But that level of safety only comes from a company like Leading Edge - a height safety manufacturer - one that puts all safety equipment through rigorous testing under heavy loads and high dynamic drop forces.

By testing our products to such high standards we are making sure that Leading Edge is providing equipment that assists you in complying with the regulations. All of our tools and safety equipment come with an EU Certificate of Conformity label affixed to the product itself. We also provide customers with a paper copy of the Declaration of Conformity, which adds traceability through individually serialised records.

## Be Careful of Suppliers & Manufacturers

UK-based companies that are concerned with safety will almost always source their tools and safety equipment from reputable European suppliers with a proven track record of quality. However, in this day and age that is just not enough. Some of our competitors carry products manufactured in other parts of the world that don't meet minimum safety ratings for use in the EU. Many of these products are manufactured in Asia and come to Europe by way of discounted distributors who can offer them for a lower price.

The problem we often see with this type of safety equipment lies in the fact that the manufacturers are not familiar with the work at height regulations, specifically where they apply to dropped tools. Because they lack this knowledge, as well as the knowledge of approved and accredited PPE, their testing methods are not up to par by any stretch of imagination. Without proper testing it is impossible to determine whether a safety product is indeed up to the task it was designed for. Lack of sufficient testing subsequently leads to inferior products being introduced to the marketplace.

## Leading-Edge Testing Standards

All Leading-Edge safety equipment classified as structurally rated goes through two types of rigorous testing: dynamic and static. Our standards follow those found in article 11b of the Council Directive, used to test harnesses and lanyards for PPE. This means our equipment is tested to the highest standard to ensure it can withstand greater forces than would normally be experienced under standard working conditions. We believe it's better to err on the side of caution in order to protect you, your workers, and your clients. In order to illustrate what we mean, let's look at both our dynamic and static testing methods.

### Dynamic Testing

Our dynamic testing is designed to ensure that a particular piece of safety equipment will not give way when a tool is dropped at height. Therefore, we begin based on the principle of using a 10kg load dropped from a distance 2M higher than the anchor point. This allows the object to free fall for twice the maximum distance of the restraint (be it a lanyard, tether, etc.) before impact. The tool safety device is fastened to the anchor with a connector, and the load fastened to the other end with a separate connector. There is nothing underneath the test site to absorb the energy on impact, resulting in the safety device bearing the entire dynamic force of the impact when the mass reaches its lowest point.

In addition, our safety equipment is tested to a rating of 5kg whilst many of the manufactures and distributes outside the EU have a rating of only 2kg. For heavier tools we perform the same dynamic testing except that we increase the load to 100kg. This is necessary because heavier tools will gain more velocity as they fall and result in a greater impact force. So while the dead weight of your heavier tools may not be 10 times that of your lighter tools, the force generated by them can be several times greater when you account for velocity.

# Guidance

## Static Testing

Our static testing is divided into two phases. The first phase is designed to ensure that the safety device and its connectors do not lose their load under prolonged stress. For example, we would test a lanyard using a direct pull method at just over 55 kg. We hold this load for three minutes to ensure the safety device does not let go. Our second test is designed to measure the force needed to cause complete failure of a safety device. We call this our “destructive pull test “. It can result in a load of up to 550 kg being applied.

## How Some Others Test

Our concern with some of our competitors comes down to overall strength of safety equipment. To that end, there is a lot of misinformation regarding products that come in from overseas. Our observation reveals there are two types of test methods stated as being conducted by these manufactures (whether or not those tests are actually carried out is a matter of question) yet the safety equipment is only being tested statically. For example, one of the test methods involves a total load of approximately 2 kg being added gradually, in a straight hanging scenario. The reality of dropped tools clearly shows that this type of test has no basis in reality.

When you consider the fact that a 2kg tool carries the force of an object weighing between 35kg and 40kg when dropped at height, becomes pretty clear that such a basic static test is completely inadequate. While it's not necessarily guaranteed that safety equipment tested this way will fail, it's not a chance you should be willing to take with the safety of your workers and clients.

Our second concern with competitor products comes by way of their perception of dynamic testing. Some of these manufactures do realise the futility of claiming safety based only on the previously mentioned static test, to their credit, so they also provide their own dynamic testing of sorts. However, there are European dynamic testing standards in line with PPE CE testing protocols, and there are also a completely different set of standards for use in the U.S. The difference comes down to the height from which an object is dropped during the testing procedure.

In the European model, which is the one used by Leading Edge, the load is dropped at a distance twice the length of the safety device by lifting the load to its maximum height above its anchor point before dropping. This distance allows the maximum velocity and greatest impact force at the end of the drop. The U.S. method calls for dropping a load at the point of anchor so that it only falls the distance of the safety device. In essence, this is half the distance. The amount of force generated by both types of drops is significantly different to the point of being seriously dangerous if a safety device is not strong enough to withstand a free fall twice the length of the device. Which could easily be the case where the tool lanyard was attached to a tool belt or structure and you are working with the tool above head height.

## Real Numbers Tell the Difference

When sourcing your tools and safety equipment you undoubtedly will be checking the numbers in terms of Safe Working Load (SWL). This number can be misleading if you don't understand what you're looking at. For example, a lanyard that has an SWL of 2kgs may only have been tested using the static model of adding weight gradually. And because that lanyard successfully held the load of that test it can now be rated with an SWL of 2kgs. Whilst that rating may appear to designate a safety device as being appropriate, failure may be realised if a tool at the high end of the weight load is dropped the full distance of twice the length of the lanyard.

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test of 235kg. In addition, we test each piece of safety equipment three times during the testing procedure as an added precaution against failure. The final product is given an SWL rating of 5kg, meaning the difference between our rating and testing loads is 47 times! You would have to apply an incredibly heavy load over an extremely long distance in order to see one of our safety devices fail.

## Procuring Your Safety Equipment

When it comes to testing and rating of safety equipment there are three things that need to be considered. First of all, simple static testing will not do. The harsh reality of dropped tools indicates that proper dynamic testing must be carried out by allowing loads to be dropped to their fullest extent. Very rarely is a tool on a job site dropped from the anchor point; it is typically dropped from the hand of the worker while he's engaged. Proper dynamic testing takes that into account.

Second, adequate provision must be made for extreme circumstances that may fall beyond the parameters of the normal work experience. That's one of the reasons why Leading Edge uses such heavy weight loads and maximum fall distances. There are always circumstances in play that may multiply the forces incurred in a fall and the resulting destructive forces on impact.

The Leading Edge difference is the fact that all of our structurally rated products must pass on impact force. Third, tools and safety equipment should only be sourced from manufacturers and distributors who are familiar with PPE testing and safety requirements. Especially in the area of manufacturers, intimate familiarity with safety standards is required for safety critical production and inspection methodologies. It is highly unlikely the manufacturer unfamiliar with PPE testing will be manufacturing and testing their own products to the highest standards possible.

Finally, all safety equipment you purchase should be PPE tested and labelled as such. Labels should include individual serialization, manufacturing date, the appropriate safety ratings, and where the piece of equipment originated. All of this information is necessary for equipment procurement staff to ensure

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