



Fall Prevention from Tankers – What's New?



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Introduction

A question asked often in our business is “**what’s new?**”. In many cases it is an enquiry made in the hope that someone, somewhere, has devised a new and ingenious method for providing complete safety of operators on tanker tops, with an installed cost of practically zero. So, what has changed?

- Gravity has not done much for a while now and remains the primary issue.
- Concrete is also another negative aspect.
- Tanker heights have increased over the last 20 years from an average of 3.2 meters to a maximum 4.2 meters.
- Finally, legislation and awareness of the dangers has increased globally and now the *Prevention of Falls from Height* has found its way into legislation in most countries around the world.

With those four factors as our starting point we will try to provide some guidance on how to develop a strategy for selecting the right equipment to make tanker top operations safer.

A number of companies have devised and written their own standards for tanker loading/unloading and access. The standards have been developed in close consultation with leading suppliers of bespoke Fall Prevention and Tanker Loading systems. This ensures that they have the widest range of options available to them which can be applied appropriately to suit the varying conditions encountered at site. These standards are applied to every one of the company’s operations globally so that local engineers can apply investigative tools, allowing them to select a pre-approved methodology for solving a particular problem. This also helps to eliminate the “home made” solutions that can be found at some sites. The home-made market is a serious problem.



Very often these devices are supplied as copies of established brands and have not been tested to the same rigours as the original. They possess no certification and lack the necessary insurance cover that manufacturers of this type of equipment need to carry.

Of course there are many end user companies who do not have their own standards and their engineers will seek to develop solutions locally, using the internet as the main route for investigation. Internet searches will produce a wide range of suppliers, eager to secure their equipment onto a project. In many cases the suppliers are offering broadly similar equipment manufactured in a wide range of locations.

So how does the engineer differentiate between one supplier and the other? The easiest filter to apply at an early stage is whether the equipment being offered meets legislative criteria. For instance, in Europe, does it carry the necessary CE compliance certification? Finding out that it doesn’t when the equipment is delivered is not a happy route. Suppliers with the necessary compliance certification will be able to demonstrate readily that their equipment meets the minimum standards applicable in the region the equipment is deployed.

Another filter would be to request references of past installations, where similar access problems have been resolved with the proposed equipment. Again, after delivery is not a good time to find out that you are the “proud” owner of serial # 001.

An important factor when developing the tanker access solution is to know what the equipment is going to be used for. Generally this can be for:

- tanker top loading with arms or hoses or “chandeliers” of valves
- tanker unloading and venting
- application of venting or purge connections
- incoming or outgoing load sampling
- checking tanker security

This then leads us to the third supplier filter. If the project requires the close interaction of Fall Prevention systems with tanker loading/unloading arms then it is critical that the supplier understands this and can design both sets of equipment to work together. So often an engineer will buy the two items separately and then have endless issues with clashing and inconvenient handling which could so easily have been avoided. Going back to the “what’s new?” issue, it rather



depends on how much you have been keeping up to date. In approximately 90% of current tanker access positions the gap between the tanker and the platform is bridged by a drop down ramp with little or no counterbalance to cushion the impact on the tanker top. In an age when tankers were around 3.2 meters high and the platforms were approximately the same, this worked adequately at best and variably at worst. Latterly, tankers have grown and the majority of these platforms have not. This leads to the access ramp resting against the tanker almost vertically and negating any notion of providing safe access. If this is where your site is at the moment then the 2012 world of Fall Prevention will amaze and astound you.

If, however, you already have a folding stair/gangway with a safety cage and you want to access a greater range on the tanker top, then you have a number of choices.

- Track mounted folding stairs allow the unit to traverse the face of the platform and extend the working range. This is almost unlimited depending on the platform
- Large safety cages can extend to 12m and allow the tanker top to be accessed with a cage surrounding the working area.

These solutions are relatively low cost and can be retrofitted to existing, suitable platforms. However, there remains a variable that is one of the main causes of falls from height. They both rely on the quality and availability of the grating fitted to the tanker top. This can vary from tanker to tanker and in some cases the only option is to walk on the barrel surface which can be wet and slippery.

The solution to this is a vertically elevating cage that has integral flooring. This allows the operator to walk anywhere within the cage in complete safety and select



the working area by lifting a number of hinged floor panels. The system is widely recognised as being the safest method of fall prevention for tanker top operations. The fact that it is vertically elevating means that it can provide suitable protection as low as 3.2 meters and as high as 4.2 meters while having the parking position at 4.7 meters above the ground and well clear of passing traffic. Also, because it does not operate through an arc, the tanker centreline is always the same, which is important if using loading arms.

The system is ideally suited to users who want to access the full length of the tanker top and use loading arms to fill compartments of the tanker without having to move the vehicle. The operator can easily walk the (appropriately designed) loading arm to any manhole on a flat and grippy walk surface in all weathers without having to take care of obstructions.

In the UK, the Health and Safety Executive document *Prevention of falls from road tankers and tank containers enforcement standards* makes the point that if the road

tanker is equipped with elevating handrails, it should have these on all open sides. A number of tanker manufacturers have developed ingenious and easily operated systems that provide this feature. The document also points out that these are “unlikely” to be found on tank (ISO/Sea) containers, which represent an increasing percentage of bulk liquid transfer. Whilst these measures are considered satisfactory, the document does say that they should only be used where fixed gantries are not “reasonably practicable”. What does that mean? The general consensus is that it means from a logistic or engineering viewpoint, rather than a lack of desire to spend money.

The UK's Road Haulage Association document *Prevention of falls from road tankers* has some interesting and disturbing statistics. Between 2001 and 2005 in the UK, there were 5 deaths and 10 serious injuries, incurred as a result of falls from tankers. Three of those deaths occurred because handrails were not properly raised and one was because there were only handrails on one side. One death was due to inadequate gantries and the other due to handrail that gave way.

This brings into consideration the human element. The Fall Prevention system should be designed so that the operator's task is enhanced while at the same time does not permit short cuts and avoidance of procedure. The inclusion of built-in safety cages goes a long way into guaranteeing this ethos. Assume a folding stair/gangway is installed without an integral safety cage and falls are mitigated by having a harness and safety wire while on the tanker top. The risk, which is very real, is that the operator, whether distracted or deliberate, will access the tanker without going through the labour intensive action of putting on the harness. All the procedures, instructions and threats of termination cannot guarantee that a moment of “madness” will not happen.

So the age old saying of “you get what you pay for” holds true in fall prevention. If the task is to fill or empty a number of compartments, then providing a single position tanker access system, which means endless tanker shunting, often resulting in damage or accident or both. The operator will be frustrated and seek ways to shorten the task. If the range of tanker heights and shapes means that the existing platform is too low, then the operator will take shortcuts to lessen his efforts.

Fall Prevention from tanker tops is a constantly evolving, feature laden opportunity for all industries engaged in liquid transfer. No two customers have identical problems, there are always factors that make each application different. Fortunately, there are a wide range of solutions available to meet all budgets

and applications. Choosing the application that meets your logistical and financial criteria is something that must be done with an expert supplier who can select and, if necessary, adapt their design to meet your needs. Having a large stock of folding stairs “on the shelf” and ready to ship is not necessarily the solution to a problem that requires thought about the operator, the tankers and the future.

What's new? Well, not a lot really. There are many companies, driven by safety and operator welfare who are pushing the industry to develop increasingly fool proof and secure systems. Then there are companies who are in denial about the effects of gravity and concrete. The good news is the former are definitely outweighing the latter and long may that trend continue, for everyone's sake.