Designing-in savings: how quality solutions can reduce the true cost of fall protection PPE

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The Safety Company

An MSA White Paper

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True whole life cost of ownership is often overlooked when choosing, comparing and budgeting for fall protection personal protection equipment (PPE). Whilst shortlisting lower-priced equipment may seem sensible, invariably it can be a costly false economy. Any purchase price saving can quickly be negated several-fold once the true cost of service, maintenance, repairs, and replacement is factored into the product's lifetime.

This whitepaper highlights the most important, and often hidden, factors to consider when investing in fall protection PPE. It illustrates the true ownership costs that may be incurred, and the ways that effective product design can mitigate or even eliminate expense. It will also explain how to exercise prudent fall protection PPE cost control, and explore how and why higher quality, more premium products can offer greater value for money over their service lifetime.

Falls from height: the need for effective fall protection PPE

Sadly, falls remain the second leading cause of accidental or unintentional injury deaths worldwide[1]. In the UK in 2019/20, falls from height accounted for 29 out of 111 workplace deaths (26%), according to the latest Health and Safety Executive statistics[2]. In the period 2015-19 there was an average of 36 fatalities per year due to falls from height (24% of all workplace fatalities).

The need to fully understand the risks of working at height, and to ensure competent persons have appropriate and compliant fall protection systems, equipment and procedures in place when access is unavoidable, is as stark as ever.

Investing the time to understand risk company-wide

To correctly plan for and select appropriate fall protection PPE, organisations must invest time to fully and accurately scope out, assess and quantify risk based on European Directive 89 656 CEE and all relevant local legislation. This is no trivial task; every environment is different, and sites may have complex access requirements at multiple locations. Where a duty holder is suitably qualified and experienced, a fall protection risk audit can be undertaken using internal resources. However, in cases where this expertise is not available in-house, the task should be subcontracted to an external independent safety consultant.

Undertaking this exercise thoroughly is vitally important. Any failure to identify risks at the outset could jeopardise worker safety and lives. In addition, if oversights are identified later, any investment made in fall protection PPE could become compromised, with serious financial consequences. Example scenarios might include locating anchors at foot-level when the risk calls for fixings overhead; or overlooking the need for leading edge applications which demand compliance with additional safety standards.

Understanding different types of products and which are most appropriate

Anyone considering alternative fall protection solutions must apply the hierarchy of control. Collective fall protection options (for example barriers) are always preferable: they require less inspections, require no specialist training and have a long lifetime, reducing cost. Often, however, certain sites and applications mean collective protection is not possible. In these circumstances personal fall protection is needed, prioritising fall restraint (preventing a worker from reaching an area where a fall could occur) over fall arrest (suspends a worker in the harness should a fall occur) solutions.

Whether restraining or arresting a fall, both systems require the same high-level engineering performance from harnesses, lanyards and anchor points. Whilst the functional requirements are specific for each application, differences in design approach and execution between one brand and another offer significant opportunity to reduce lifetime costs.

Product selection is commonly made in-house; however, internal awareness of the latest market options and innovations may be limited, and choices from an incumbent distributor may be limited. For a true market-wide assessment, consider commissioning a paid independent consultant or company for recommendations.

Factoring inspection, maintenance and servicing costs

Fall protection equipment must be regularly inspected, and, where needed, serviced, maintained, or replaced in accordance with the manufacturer schedule. The design and construction of PPE equipment can have significant consequences for the comparative costs of these activities.

Inspections must be undertaken by competent persons who are suitably trained. Equipment that is designed to be easy to inspect without tools saves time.

Some manufacturers do not design their products to be serviced and/or maintained on site. Instead, they must be periodically returned to the manufacturer or approved service agent. This may require companies to bear the cost of investing in spare, replacement PPE stock in the event a maintenance swap-out is required.

Conversely, more premium PPE can mitigate or reduce the need for periodic off-site servicing and repair, thus minimising potentially costly downtime. Routine annual servicing can often also be managed internally, on-site, by a trained competent person.

Table 1 – although wholly indicative – illustrates the potential cumulative cost differences in fall protection PPE service costs. It compares a more premium SRL product (MSA V-Series) with a comparable, but ~40% less expensive, competitive solution. To offer a relative service cost comparison, the initial purchase price of the competitive product is 'X':

As you can see, the ability for a competent person to service equipment on-site offers the potential for lifetime savings that significantly exceed the marginally higher initial purchase cost.

		Annual Service Cost										
SRL	**Purchase cost**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**	**Total lifetime service cost**
Competitor model A (requiring annual offsite service)	'X'	+0.2X	+0.2X	+0.2X	+0.2X	+0.2X	+0.2X	+0.2X	+0.2X	+0.2X	+0.2X	**2.84X** = 284% of purchase cost
MSA V-Series (maintained annually on-site by trained user)	1.65X	0	0	0	0	0	0	0	0	0	0	0

Table 1: Cumulative cost differences in fall protection PPE service cost

The link between product design and whole-life cost

Innovative product design leads to more versatile, multi-purpose equipment. For instance, new personal fall limiters are certified for overhead to foot level anchorage, leading edge risk and even mobile elevating work platforms in one single product. Whilst the per item purchase cost may be marginally higher, the multi-use capability serves several applications. This therefore brings savings and even further safety.

Design also plays a key role in reducing whole life costs.

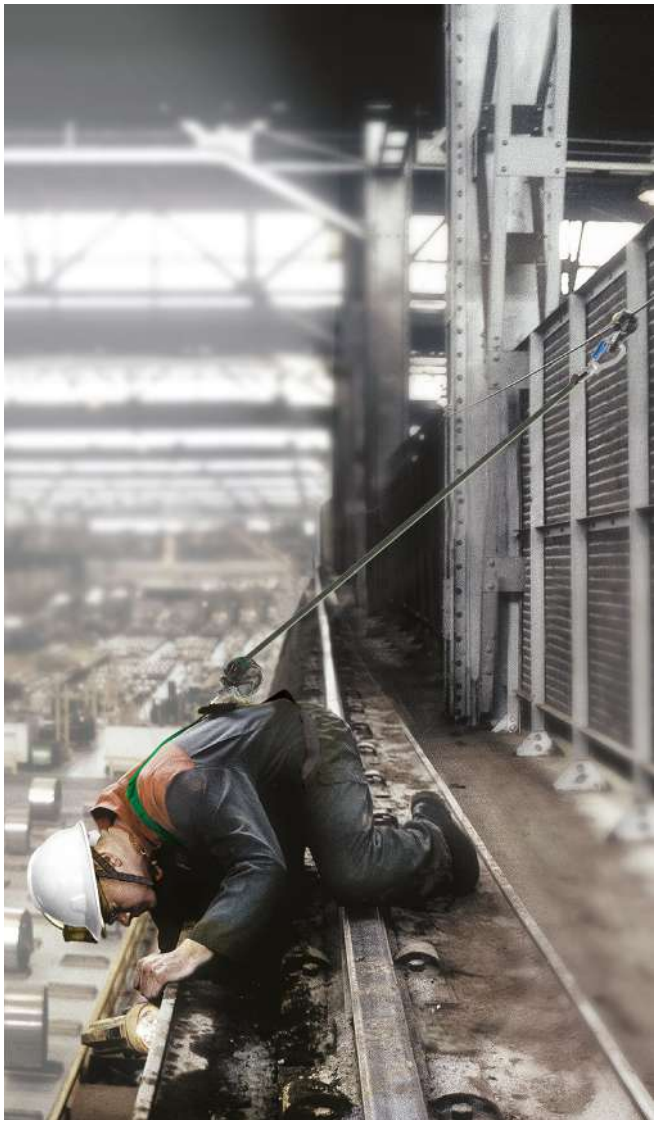
This value-added approach is illustrated in standard (overhead access) and leading edge (horizontal access) self-retracting lifelines (SRLs) and harnesses from MSA.

For example, design allows for mechanisms used in self-retracting lifelines (SRLs) to be visually inspected without tools or disassembly, and components like the cable, energy absorber and retraction dampener can be easily replaced on-site.

Similarly, premium harnesses should incorporate design features that maximise lifetime performance. For example, all fall protection harnesses carry a type approval and product identifier label which must be present and checked annually for a harness to remain compliant. If the label is missing or illegible due to degradation or wear, the harness must be withdrawn from use and replaced. Harness design can relocate and protect the label from wear.

Harness textiles can become prematurely degraded by abrasion, dirt and contaminants. Applying coatings can protect the material, potentially significantly extending service life for daily use applications.

High-quality equipment benefits from advanced engineering and rigorous testing, both of which contribute to compliance and performance. Other products may wear, or degrade more quickly, potentially requiring premature replacement and increasing total cost of ownership.



Budgeting for necessary training

Before introducing any fall protection equipment, it is essential users are deemed fully competent. They need to be able to check their PPE, identify any risks, and understand how to use equipment safely and correctly. A qualified provider should be consulted to provide expert PPE training, and duty holders should ensure appropriate refresher sessions are periodically scheduled. PPE training is not an area where companies can afford to cut corners to reduce costs.

Save time, save money, save lives

Working at height poses many challenges for companies seeking to protect workers correctly. It is essential to invest time and resources to correctly understand risks. The range and diversity of fall protection PPE available means it is important to have a whole market understanding of the different options available, and the performance, versatility and maintenance benefits that may be conferred through design. Choice of equipment has long-term cost implications beyond initial purchase, and duty holders should seek to understand these during procurement. Whilst premium PPE may appear more expensive at the outset, whole life cost savings will significantly outweigh the outlay. On top of this premium PPE brings enhanced comfort among many other benefits. Providing all users with quality training is also essential, and a dedicated budget is needed to commission a qualified provider. Finally, investing in more premium equipment and services often translates to fewer challenges for those responsible for safety. Instead, they can invest their time in a better, more profitable way.

[1] *Falls, World Health Organisation*
[2] *Fatal injuries in Great Britain, Health and Safety Executive*
[3] *Tödliche Arbeitsunfälle – Absturzunfälle, Baua*

MSA—**The Safety Company**

Our business is safety. We've been the world's leading manufacturer of high-quality safety products since 1914. MSA products may be simple to use and maintain, but they're also highly-sophisticated devices and protective gear—the result of countless R&D hours, relentless testing and an unwavering commitment to quality that saves lives and protects millions of hard working men and women each and every day. Many of our most popular products integrate multiple combinations of electronics, mechanical systems and advanced materials to help ensure that users around the world remain protected in even the most hazardous of situations.

Our Mission

MSA's mission is to see to it that men and women may work in safety and that they, their families and their communities may live in health throughout the world.

MSA: WE KNOW WHAT'S AT STAKE.

MSA operates in over 40 countries worldwide. To find an MSA office near you, please visit ***MSAsafety.com/offices***.

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