Compliance is the starting point

Emergency safety showers and eye baths are vital pieces of first aid equipment wherever there is a risk of dangerous chemical spillage. The showers are very simple bits of equipment but absolutely must work as specified when required every time. This need for consistent and reliable performance means that, despite their simplicity, considerable thought needs to be given to their design.

As with all products there is considerable variation in the quality of safety showers available on the market. This article considers some of the features that make a good shower and why they are worth paying extra for. This is not a discussion about how showers meet the various ANSI and EN standards as it is assumed that meeting these requirements is an absolute minimum requirement for any purchasing decision. Instead this article discusses the features that go above and beyond the American and EU design standards.

First a word of warning

Even if all the advice in this article is taken on board and all showers are upgraded with the very best safety features this will not, on its own, “cover” an employer’s obligations. The safety shower is only one part of an overall safety system. Training and planning are by far the most important elements in improving overall safety. Yes having the best, most reliable first aid equipment will help but all the advice in this article is for naught if the overall safety plan is poor.

A dangerous mind set

The problem with safety showers is that they are pieces of equipment that are (hopefully) very rarely used. They tend to kind of sit in the corner gathering dust and only get used when they are being tested. Companies buy them because their health and safety consultant tells them they must. The shower needs to conform to the relevant standards and the health and safety manual will specify how many showers are needed and where. But as long as “compliance” is achieved then everything is thought to be ok.

This sets up a potentially dangerous mind set. The various standards, specifically ANSIZ358 and EN15154, are met by many showers on the market. There has been a recent trend towards making showers cheaper by using less expensive materials and cutting down on quality. Whilst these showers will still meet the required flow rates and shower patterns outlined in the standards and they may well tick the necessary boxes to achieve “compliance”, the cheaper and inferior products may still expose companies to a litigation risk.

Why compliance is not always enough

Simply having the required number of showers is not always enough. If things go wrong with the operation of the shower when needed the company may be liable for injury compensation claims. A fully compliant shower that meets all the relevant standards is completely useless if it fails to operate as specified. The responsibility to ensure the shower does operate correctly lands squarely on the shoulders of the employer.

Little Details Save Lives

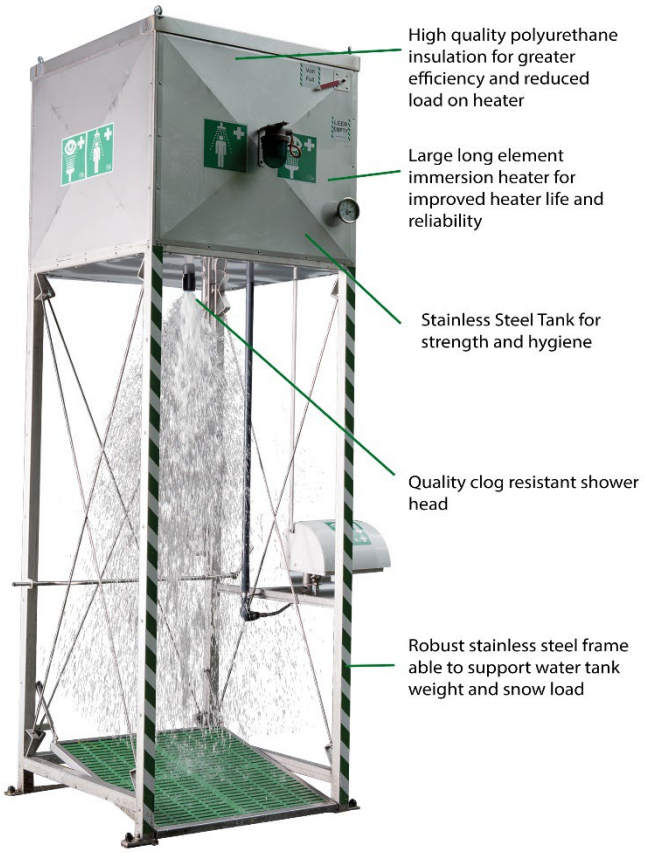
What makes a good safety shower?

As mentioned above this discussion assumes that all showers will meet the relevant ANSI and EN specs already. The discussion below is about the elements that go into a shower that are not encoded within these standards. These may cost a little extra but could, potentially, save huge amounts of money for a company in litigation expense. Also let's not forget the human cost involved here! It is all too easy to get a bit hardnosed and "corporate" about these matters, focusing purely on the potential financial / litigation cost. What we are really dealing with here is product features that may prevent agonising pain, suffering and death in our fellow humans. So, as well as the financial motive there is a very strong moral imperative to consider these product features when purchasing safety showers.

Material of construction

The recent trends towards the use of plastics is not a particularly welcome one from a safety perspective. Sure they are cheaper and lighter so will save on costs but they simply don't compare to the traditional stainless steel showers. Stainless is also often replaced with galvanised steel, again this is a cost saving exercise but the resulting product, whilst meeting the standards, is inferior.

The anatomy of a quality tank shower



Corrosion, wear and damage in cheaper showers should be picked up by the 6 monthly inspections but what if they are not? What if the critical damage occurs in between inspections? The simple fact is that stainless steel showers are tougher, have a longer working life and are less prone to corrosion than showers made from cheaper materials. This makes them inherently safer pieces of equipment. Further to this they will last longer and so the replacement cycle is considerably longer. This is particularly true in tougher environments or outdoor environments where plastics may be exposed to sun damage.

For tank showers in particular the material of construction for the holding tank is of critical importance. The water in these tanks may be sat there for several months before being replaced and it may well be kept at a warm temperature. This is potentially a perfect breeding ground for bacteria and so a hygienic design is of paramount importance. Stainless steel is again the material of choice as it is inherently far more hygienic than cheaper plastics.

Little Details Save Lives

Points to consider

Is the shower body (or frame in the case of tank showers) made of galvanised steel or genuine stainless?

How sturdy is the frame? Tank showers may be carrying 2 tonnes of water when full. The frames supporting them, therefore, need to be strong and well made. Also will the frame be strong enough to cope with additional stresses such as a snow load in cold conditions?

On tank showers is the tank itself made from cheaper plastic or is it stainless? Cheaper tanks can easily “hide” wear damage until it is too late.

Are all the parts stainless? Galvanic corrosion (see below for more details) can mean that even small non stainless metal parts will reduce the working life of the whole structure. So it’s worth checking whether all nuts and bolts are stainless as well.

Frost protection systems

There are many frost protected showers on the market and the need for this is stipulated in both the EU and American standards. Not all frost protection systems are made equal though and whilst many showers may comply, some may comply more than others (if one will forgive the deliberate logical fallacy).

Points to consider

Is the trace tape sufficient? Many cheaper showers will have short trace tape runs that will only heat a small amount of the pipe being protected.

Is the insulation of a good quality? Cheap polystyrene insulation is commonly used in showers. This has a significantly lower insulation rating than the more expensive polyurethane used in quality showers. This means that more strain will be placed on any heating elements or trace tape and so these components will tend to wear more easily. It also is wasteful of electricity.

Is the insulation casing strong? Cheaper plastic casings are more prone to damage which can leave the insulation material exposed to the elements. This can lead to a degradation in the insulation material and or mould growth. This is even more of a problem if cheaper polystyrene insulation is used as this is far more permeable to water than superior polyurethane insulators.

Heating systems

Many tank showers require heating elements to ensure a tepid water supply. Again this is relatively simple to design, as a simple thermostatically controlled element will keep the water in the tank at the correct temperature. But again not all heating systems are made equal. Many showers will tick the “heated supply” box by having an element but will use cheap elements and probably cheap insulation. This combination of a sub quality element being made to work harder because of poor quality insulation means the likelihood of failure is dramatically increased.

Points to consider

Are the elements of a sufficient length? Cheap heaters will have short heating elements. These need to get hotter and work harder to heat the water and thus will tend to fail more rapidly.

Is the insulation of a good quality? Polystyrene will typically transfer 33% more heat than polyurethane insulation. This means any heating system will need to work 33% harder, increasing wear and running costs.

Other details

Some other design points to consider

If deploying into ATEX zones - is the whole shower certified or just the electrical components?

The material of construction may have a bearing on overall suitability in EX zones and an ignition hazard assessment should be undertaken. The heavy use of non-electrically conducting plastics may represent a sparking risk as they could build up a charge. Again stainless steel showers are far more suitable in such situations.

Showers bore size

In hard water areas, particularly with heated showers, calcification deposits can easily cause blockages. Well-designed showers will have larger holes in the shower heads to avoid such blocking.

Nuts and bolts

If the shower is sold as being stainless steel then is everything stainless? The presence of inferior material nuts and bolts might save a bit on cost but it compromises the main stainless structure at the time. Different metals, even different grade stainless alloys, should not be in contact if at all possible. This is due to the phenomenon of galvanic corrosion where different metals in contact in the presence of water will corrode faster than either would on its own so even small parts made from inferior materials can dramatically reduce the life of the whole structure.

Conclusions

As with all things you tend to get what you pay for. There are many safety showers on the market which will meet ANSI and EN standards. They will all tick the relevant box on the health and safety check list and so in that respect are equal, but some compliant showers are more equal than others! With very well made stainless steel showers you may pay a bit more than for their plastic counterparts but the unit will last longer, will be less prone to operational problems and because of this will reduce the overall litigation risk to the business. If that is not sufficient motivation to spend the extra money then there is the small matter that a stronger, more durable and robust shower might just be responsible for saving a life or two. For a piece of kit that absolutely must work as specified when needed it would seem that the cheaper option is not always the best.

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1 About SSP

The Safety Shower People are a specialist supplier of emergency showers, eye baths and decontamination showers. We are the exclusive distributors for world leading safety shower manufacturers FSP Tech.

Our showers and eye baths are essential first aid equipment on any site where substances dangerous to human health are used. The presence of proper shower equipment can help reduce injury, save eye sight and lives in the event of a chemical spill and or burn. All our showers will meet the EN15154 and or the ANSI Z358 standards.

SSP are part of the Spray People Group of companies.

2 About the Spray People Group

The Spray People Group of companies consist of the following business units.

The Spray Nozzle People (Bete Limited) – Suppliers of spray nozzles

The Safety Shower People – Suppliers of safety showers and eyebaths

The Professional Sprayers People - Suppliers of handheld and backpack sprayers, granule and dust applicators

Technical Fulfilment – specialist warehousing and logistics services

The group consists of focused business units selling a variety of spray and fluid handling equipment. The business philosophy for each unit is simple: To provide the very best products backed up with expert technical knowledge and support. Often the products we supply are complex and so require specialist knowledge to ensure they are correctly specified. This necessitates a level of trust between us and our customers. This is why we believe that people are the most important element in our business. It is the trusted relationships formed between our employees and our customers that create true value.

THE SPRAY PEOPLE GROUP

THE SPRAY NOZZLE PEOPLE Bete Limited

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THE PROFESSIONAL SPRAYERS PEOPLE

THE FULFILMENT PEOPLE