While LOLER and PUWER provide a background for safe usage of lifting equipment, engineers need to be aware of other factors, says Steed Webzell

Lifting the lid

Pointers

- While there are well-known regulations that detail requirements for lifting and handling equipment and practice – most importantly, LOLER and PUWER – there is rather more to achieving safety than blind adherence
- Be aware that many lifting solutions for loading bays are bespoke and require the services of a specialist. One such is Easilift Loading Systems, which was also one of the first to achieve the SafeContractor Health and Safety award

Most plant engineers probably have a horror story about lifting equipment that failed or malfunctioned. For many, the experience will have resulted in neither serious injuries nor fatalities. But the truth is, we all know they so easily could.

Unfortunately, while there are well-known regulations that detail requirements for lifting and handling equipment and practice – most importantly, LOLER (Lifting Operations and Lifting Equipment Regulations 1998) and PUWER (Provision and Use of Work Equipment Regulations 1998) – there is rather more to achieving safety than blind adherence.

One who sees more bad practice than most is Alan Fitzpatrick, contracts engineer at insurance group Royal & Sun Alliance. “Some of the most frequent problems we encounter include contracted maintenance companies that also act as the ‘competent person’,” he warns. “This, in effect, means they are checking their own work and creates a conflict of interest where outstanding issues or problems can easily get missed.”

Budget is probably the underlying culprit here, a factor that all too often contributes to bad practice, with potentially disastrous consequences. “Another problem we confront is clients that enter into maintenance contracts which specify a fixed number of site visits per year – but with a proviso that a pre-agreed budget will not be exceeded,” continues Fitzpatrick. “So even though a maintenance schedule is in place, serious defects can be overlooked, because of budget restrictions.”

Sadly, it often takes an accident before companies realise that cutting corners and skimping on maintenance budgets for lifting, and also for materials handling equipment, is a very false economy. And it’s not just about demonstrating best practice in plant maintenance, but also in its use: failure here can also put people at unacceptable risk and lead not only to human suffering, but also potentially to very large fines.

According to Royal & Sun Alliance, best practice in terms of usage starts with little more than common sense. Taking a pragmatic, considered approach to lifting problems will, it says, help to avoid injuries. However, statistics appear to indicate that this is easier said than done. Materials handling specialist Linde makes the point that, on average, someone in the UK is involved in an accident with mobile handling equipment every working day.

Health and safety

It could all be so different. Common sense dictates that risks to health and safety can be reduced vastly, simply by ensuring that the right equipment is used. Too many plants deploy one type of truck for all lifting tasks, despite the list of truck models and variants telling its own story. Why, for example, don’t organisations invest in: hand pallet trucks, pallet stackers, reach trucks, order pickers, narrow aisle trucks, counterbalance trucks and sideloaders, if those are what they need?

Equally important, though, is selecting the correct attachment for the application. Laziness too often determines that the most commonly used attachment remains on the forklift for all lifting tasks – another recipe for disaster. B&B Attachments points out that among forklift attachments available are fork positioners, drum clamp/rotators, load stabilisers, working platforms, fork spreaders, paper

roll clamps and tyre handlers. Attaching a camera can also improve safety – for example, when working with double-deep racking.

And that list is growing all the time. New to B&B's range is the Kaup T414-1 for handling large non-palletised items, such as brown and white goods. That unit incorporates aluminium contact pads and specially developed arm connections on the guide profiles to improve residual capacity of the forklift truck. Meanwhile, Invicta Forks & Attachments highlights its stainless steel forks, aimed at applications where fire safety and hygiene are important. And AL-Vac mentions its Batlift portable, battery-powered vacuum lifter for fork trucks, capable of handling up to 5 tonnes and able to lift and power-tilt loads through 90º.

But lifting and handling is not only about forklifts. Internal gantry cranes, hydraulic lifts, electric lifts and hoists all play active roles in modern plants and factories, and there are several worthwhile options here, too. One is the Swing Lift Foldaway 1000 from Penny Hydraulics, which is a compact, vehicle-mounted crane for pick-ups, drop sides, flat beds and box vans, and is capable of handling 1,000kg at a boom extension of 1.5m – useful for service and engineering applications, for example, in the water and rail industries.

Another is the Valla 90E battery-powered lift and carry compact mini crane, which has been seeing increasing use for maintenance work in production areas, in place of overhead gantries. The unit does not require outriggers, is ideal for moving heavy machinery and fixtures up to 9,000kg, and is easy to manoeuvre.

And there are also specialist vehicle lift units, such as Stertil Koni's range. Volvo Truck dealer Thomas Hardie recently installed two Vega 240 galvanised vehicle lifts from the company, for cleaning and maintenance at its Preston and Deeside dealerships. These work on a parallelogram lifting system and handle up to 52 tons. "We chose Stertil lifts because of their ability to cope with protracted use in a harsh environment," says Garry Douglas, depot manager. "They are robust and soundly engineered and have inherent safety features, which were of particular importance to us."

However, John Meale, managing director of loading and unloading equipment specialist Thorworld Industries, warns of another factor influencing safety that, he says, is particularly apparent in loading bays. "An estimated 25% of factory and warehouse accidents occur in the loading bay. High levels of personnel and mechanical traffic, often combined with a low appreciation of the risks involved, mean that loading bays can, potentially, be extremely hazardous."

Further, Meale warns of an increasing amount of materials handling equipment that does not carry a CE mark, or meet European design standards now coming into the country, particularly from Eastern Europe and Asia. "I recently saw a new loading ramp made in Eastern Europe that was totally unsafe. It did not have the CE mark and constituted a major health and safety hazard," says Meale.

Thorworld offers a number of solutions, including its Truckloada mobile yardlifts, which provide a safe and economic alternative to forklift trucks and civil engineering. Among customers adopting this system are Brother (UK) in Manchester and the Serious Food Company's Llantrisant plant in mid-Glamorgan. Thorworld also reports strong demand for its mobile yardlifts from recycling companies, including Biffa Waste Services, SCA Recycling and Smurfit Recycling. PE

John Meale, managing director of Thorworld: You need to be careful

on lifting

Technology variants

Lifting technologies – or rather technologies on the periphery – don't stand still. For example, in a departure from flow and level monitoring for the process industries, Pulsar Process is offering non-contact ultrasonic equipment to measure jib arm height on hydraulic excavators.

The company recently supplied the North Level District Internal Drainage Board with devices for its excavator cutting arms, used to clear drainage channels. As the excavators work along the drains, there is a danger they could hit or pull down overhead power lines. There have long since been HSE (Health and Safety Executive) recommendations and, at this organisation, drivers are instructed to maintain 2m clearance below power cables, using a set of location and height tables.

However, in order to set the maximum height accurately, the driver needs to know the height of the jib arm – which is where Pulsar comes in. The company supplied Blackbox ultrasonics, comprising a dB10 transducer mounted on bearings on the cutter arm, with a height display in the cab. The transducer rotates to face the ground and computes height from ultrasonic reflections.

Meanwhile, MaxStream 2.4 GHz XStream radios, embedded in SafeHoist hoist monitoring systems, are being used to transmit safety information to operators in mines. The wireless link means there's no need to install costly and leaky feeder cables, and the data is used to analyse hoisting vibrations and wire rope safety factors, and to warn operators if limits, MSHA or OSHA safety regulations are being exceeded during hoisting of miners and materials.

MaxStream was chosen for its ability to withstand harsh environments. The data path up the mineshaft contains numerous encroachments on line-of-sight, as well as attenuation and multi-pathing, but SafeHoist is successfully transmitting data at distances exceeding 6,000ft.