

# Safer, smarter and faster lifting

Ensuring the highest levels of worker safety while maintaining optimum productivity is often a concern for manufacturers, but recent advances in crane technology provides peace of mind. Katherine Crichton reports.

HEALTH and safety in the workplace is a vital issue for the manufacturing industry but the latest developments in crane design means manufacturers are not only looking at cranes as a safety device but also as a way of increasing productivity.

Recent trends in crane design indicate a move towards more ergonomic and lightweight crane systems, which allow workers to move loads safely, easily and quickly. Manufacturers are choosing to install several workstation cranes throughout the workshop instead of a single larger crane, enabling operators to work on smaller, repetitive lifting jobs as well as the heavier jobs usually undertaken by bigger cranes.

An example of this is a glass company who needed a crane to lift glass panels up to 500kg in weight. Initially they installed a 3t SWL motorised crane and spent \$30,000 having a new concrete floor poured to handle the load.

The company then realised it could install a smaller and lighter Altrac roof mounted gantry crane that didn't need to be motorised for half the price of the 3t crane and the same cost as the floor upgrade. The company saved money and decreased risk factors and potential maintenance issues associated with live wires in the motorised bridge.

Manufacturers are now looking for cranes to suit the application rather than an application to suit the crane, requiring equipment to be more portable, adaptable and easier to use.

This is a development Tate McFarlane, project engineer with Bomac Engineering has noticed in recent years. "It's a big investment to buy a crane so you want to be able to take it down with you when you leave," he said.

To help address these requirements, Bomac Engineering designed the Altrac crane system. "Basically what we needed was a lightweight system that took up no room, so we started to develop

an aluminium extrusion that was adaptable and didn't require people to have a super knowledge in crane systems to install it," he told *Manufacturers' Monthly*.

Before implementing a new crane system, Tate says there are some considerations manufacturers need to make to ensure their investment pays off.

Along with the short and long-term cost associated with installing and maintaining system, manufacturers need to consider their application.

"When companies set up a new factory, no one ever thinks about how they are going to move a product. They think about the product and how it will be built, but never give any thought to how it's going to be transported from A to B.

"They need to think about the layout of the factory, size of load and lifting frequency, SWL as well as consider the physical working environment. For example, I-beam cranes can get dirty very quickly," he said.

## Work smarter not harder

Another significant development in crane design is the use of intelligent assist devices (IAD's).

An example of this is G-force lifting technology. Using an industrial servo drive system, the system enables operators to lift and manoeuvre naturally, as if the device were an extension of their own arm.

The combination of advanced technology with basic human guidance allows the equipment to sense and respond instantly to load changes. It can also be programmed to stop or reduce speed when it reaches specific points in its lifting range.

According to Dr Lindsay Wakefield, MD of Safetech, these features make lifting safer and more productive.

"One of the problems with crane systems for instance is that people can sometimes overload them, but with G-force technology you can limit it. The moment it is overloaded



Latest crane technologies are making lifting easier for manufacturers; boosting productivity and increasing worker safety.

it stops," he said.

Lifting is also said to be easier; simply by gripping the handle of the device and applying a few grams of pressure users can move up to 300kg around effortlessly.

"If you are reducing the effort required to lift, you can increase productivity and help prevent injury," Dr Wakefield told *Manufacturers' Monthly*.

According to a study conducted by the Rochester Institute of Technology, this technology requires 78% less energy expenditure than manual lifting in high cycle applications and operators are 51% more productive and 2.5 times less likely to damage loads in precision placement applications. It also requires the least amount of handling force to reverse load direction, which has significant physical benefits in preventing the strain direction changes can have on operators' bodies.

"If you have increased productivity then clearly you have lowered labour cost, if you improve safety and don't have worker injury then you have also save labour cost," Dr Wakefield said.

While new crane technology offers manufacturers many benefits, it is important to weigh up advantages with possible limitations and expenses. G-force devices are a considerable investment, with approximate costs of \$11,000-12,000 (plus installation).

Though according to Dr Wakefield, while the advanced electronics in the G-force make it expensive, when they do come down in price they will be widely used in the market.

"Intelligent devices are going to permeate throughout the workplace. It will be a matter of 'Watch this space' to see how it developments and improves," he said.

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