

Selecting the Right Crane Systems To Boost Productivity

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Thirty years ago a typical small engineering workshop would probably have had one all-purpose crane. This would have served all needs from unloading raw materials through machine shop processing, to product build-up, final assembly and shipping. If personnel had to wait for crane availability, then this was accepted.

Move forward to today and the situation is more pressing. The world is one big workshop and though the tide of offshoring seems to be on the turn, competition is now global and intense. Lean manufacturing, making capital assets like plant and buildings work harder and ensuring people can get on with the job are now core principles. Cranes have a key role in keeping workshops buzzing.

Using Cranes Effectively – Two Examples

The Mechanical Drives division of Siemens Industry Automation and Drive Technologies in Leeds is typical of many light engineering applications. The factory produces mechanical drives and power transmission components for industry including geared motors, couplings, gear units and drive train assemblies.

Manufacturing and assembly operations are diverse, requiring component part handling, assembly and the movement of product through key stages until completion and test before shipping.

Manufacturing cells are serviced by six light crane systems, with up to six metres span, capable of lifts of up to 1 tonne each. These light and adaptable crane systems were supplied complete with chain hoists and independent gantry support. They provide flexible and adaptable lifting for lighter loads and ensure safe handling.

The light crane systems give complete access to the work area with full vertical movement and both x and y movement in the horizontal plane. Elsewhere on the Siemens site Goliath and overhead travelling cranes (OTC's) handle heavier lifts.

Operating at the heavy end of the engineering business, Mining Machinery Developments (MMD) in Derbyshire make sizing plant used by mines and quarries. To optimise production, a mix of OTC's and jib cranes provide a flexible system for production flow that is easily adapted to meet future expansion.

Three 20 tonne overhead cranes in each of two new bays run on full-length freestanding 60 metre gantries. The cranes are used for offloading vehicles and advancing product through the various stages of production.

Having adequate crange in the production area underpins productivity as the highly skilled workforce can avoid down time waiting for cranes to become available.

Cranes are double girder box beam design and feature infra-red anti-collision systems so they can safely work on the same track. For heavier lifts of up to 40 tonnes, they may be used in tandem and weight distributed by a spreader beam.

The new bays are also equipped with 10 one-tonne jib cranes, with seven units in one bay and three in the adjoining bay. Each jib crane services a workstation manned by two welders or platers. The slewing jib cranes are attached to the gantry legs with fittings that can be dismantled, enabling the jibs to be readily re-located as production needs change.

Within the assembly bays, are two double girder cranes of 50 tonnes and one of 25 tonnes. One of the larger units has an auxiliary 15 tonne hoist to give greater materials handling flexibility.

Special Considerations

It's worth taking time to brief your crane supplier thoroughly about the production process. Crane manufacturers are critically aware of the need for safety and will optimise crane speed with stability to ensure the safe transportation of loads.

Manufacturers also need to know about the intensity of crane use, both the number of lifts and movements per day and the proportion of loads at the upper end of the rated load. This information enables cranes and components to be selected with correct mechanism rating – essential for sustained and reliable operation. It is also worth considering how to customise and accessorise the crane to improve operations, from simple load spreading beams to the use of bespoke handling equipment to improve safety and productivity.

International competition won't go away, but innovation, flexibility and productivity, assisted by the right mechanical handling can ensure UK manufacturing remains viable and competitive.

Source: ECPR