HOW TO SELECT THE RIGHT CRANE

FOR YOUR BUSINESS

A Guide to Workstation Cranes

As your business grows, you will need to keep up with the needs of both your customers and your employees. Your existing customers may be placing larger orders, or your customer base as a whole might be growing. If this is the case, you are probably looking for an efficient way to increase your productivity.

Along with efficiency, you also want to ensure the health and safety of your employees. If they are manually lifting heavy products, or even light products in repetition, that will eventually take a toll on their backs and legs.

One mechanical tool that can help you solve all of these problems without having to incur excessive costs, such as more employees or larger facilities, is a workstation crane.

This paper will help you determine:

Use the above links for quick navigation through the paper

Bomac Engineering Pty Ltd Unit 1 153 Wedgewood Road Hallam VIC 3803
Ph: +61 3 9796 5300 **Fax:** +61 3 9796 4683 **Email:** bomac@bomac.com.au **Web:** www.bomac.com.au

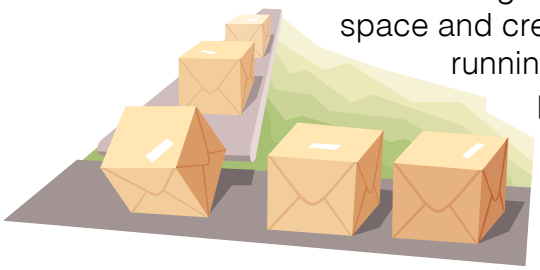
Cranes are generally mounted either in the roof or up against a wall keep floors clear and walking spaces safe.

Why use a crane at all?

If your objective is to lift and move products without straining your employees' backs, there are many options you can use. Along with workstation cranes, there are forklift trucks and traditional conveyor belts.

A workstation crane has several advantages over these other systems.

Forklifts have to drive along the ground using up floor space and creating the possibility of running into products or even posing a hazard to other employees who are on foot in the same areas. Although not creating the same threats, conveyor belts do often take up valuable floor space and can only cover one area with little flexibility to change or extend the system.



Cranes, on the other hand are generally mounted either in the roof or up against a wall keep floors clear and walking spaces safe.

What types of cranes are available?

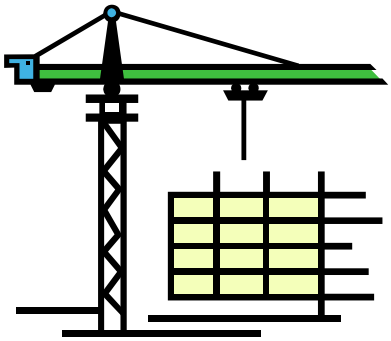
Types of cranes include Jib, Gantry and Monorail.

There are three basic types of cranes: Jib Cranes, Monorail Cranes and Overhead Gantry Cranes. There are several basic crane designs: enclosed track systems, I-beam systems, and external track systems.

JIB - The most limited workstation crane available is a jib crane. A traditional jib crane consists of a long jib arm that pivots at one end. There are several modified versions of jib cranes including cathead jibs and articulated jibs. Cathead jibs have retractable arms to move around a permanent obstacle such as a building column. Articulated jibs have a joint in the arm similar to an elbow. These are often used to reach through doors or, again, around a permanent obstacle.

A jib crane is ideal for stationary work when something simply needs to be moved from one spot to another.

A jib crane can either be mounted to an existing building wall or column, or freestanding with its own column. Freestanding jibs can also be created to be mobile. The pivot can slew manually or be motorised.



A jib crane is ideal for stationary work when something simply needs to be moved from one spot to another. Examples of this include packing finished materials into boxes, moving a product out of one machine and into another or lifting a product onto and off a work bench.

There are several types of Jib Cranes available to suit a variety of applications.

Jibs are also useful to mount tools such as air tools or hydraulic process line tools. Any type of production where a tool is being repetitively used in a specific area can be aided with a jib crane.

Jibs are ideal for work in a small area. If, however, it is necessary to cover more area a monorail or gantry crane might be the right solution.

Monorails cover long, generally straight areas.

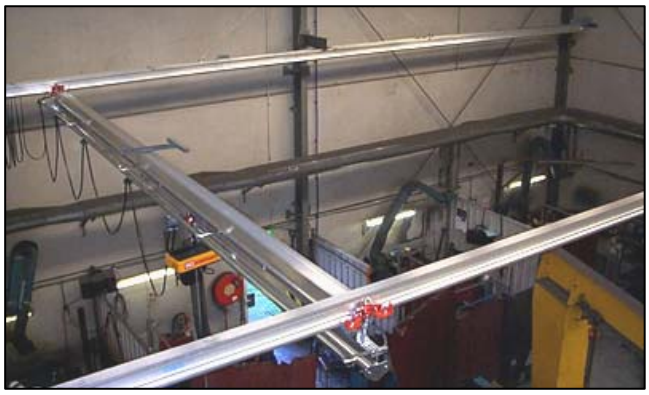
MONORAIL – A monorail crane is a single rail or beam. This type of system is used to move products in a straight line. It can cover a much longer distance than a jib crane, which is limited by its arm length.

A monorail can be mounted into a roof structure or freestanding, meaning that it is mounted on its own support structure such as columns or a frame.

Monorails cover more area than a jib crane, but less than a gantry crane.

This type of crane is useful to move products in a long, straight path. If something simply needs to be moved from one end of a factory to the other, a monorail is the ideal crane. If the straight line movement still won't cover enough area, you might want to consider the benefits of a gantry crane.

OVERHEAD GANTRY – An overhead gantry crane consists of a bridge between two side rails similar to an H shape. In some cases, these can be designed with more than a single bridge. The bridge travels along the side rails while the lifting device travels along the bridge rail.



A gantry crane allows you to move your products left and right as well as forward and back.

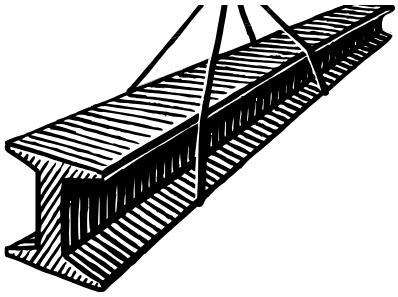
A gantry crane can be mounted from the roof or freestanding. Freestanding gantry cranes can also be created to be mobile, although they are generally designed to cover the entire workspace so that mobility is not an issue.

This type of crane can also be used to move products from one point to another, but can cover a much larger area than a jib crane and a wider area than a monorail. A gantry crane could be used to load or unload trucks or move products in an out of multiple machines.

Each style of crane has advantages and disadvantages. The main factor determining what style of crane you need depends on your unique application.

ENCLOSED TRACK – An enclosed track system is usually a hollow square or rectangular rail with trolleys running on the inside. Trolleys are generally attached to a lifting device that uses manual, electric or vacuum power to lift your products. You lift with the hoist, but then the trolley must do the work to move the product along the length of the crane rail.

One of the benefits of this type of crane is that you can't see the trolleys, which gives it a sleeker look. One of the drawbacks is that the trolleys can be difficult to access for maintenance because the track must be taken apart and all trolleys ahead of the target one must be removed first. These cranes are limited in that it is very difficult to move them around curves.



I-BEAM TRACK – This type of crane is designed using I-beams like those found in ceiling structures of many factories. The trolleys run along the flat surface on the bottom horizontal bars of the beam.

Whether you are installing your crane yourself or having someone else install is an important consideration when selecting your style of crane.

The materials for this crane are easy to obtain, but they are heavy, steel structures which can be difficult to install and put a large strain on the building elements on which they are mounted. Another issue with these cranes is that the flat surface of the rail can build up with dust causing the trolleys to jam up and have high rolling resistance.

EXTERNAL TRACK – This type of a system has the trolleys running on the outside of the track, similar to the I-beam system.

Trolleys in this system wrap around the track which makes them easier to maintain as individual trolleys can be accessed without disrupting the others. Depending on the shape of the surface, these systems won't jam up like enclosed or I-beam tracks.

Considerations when choosing a crane

The ideal crane for your business must suit all of the elements you already have in place, such as your production layout and facilities.

When selecting a crane, you will take several important requirements into consideration: application, manufacturing environment, physical restrictions of facilities, quality of the crane and long and short- tem costs.

YOUR APPLICATION – The crane must be suited to your specific application. If you want to stack bags of grain onto pallets, you would have a very different crane than someone who wanted to lift a wooden board into a routing machine.

When speaking to a crane engineer, you should tell them how much your product weighs as this will determine the safe working load, or SWL, of the crane. They should also find out where you want to move the product to, and from where. Also, the duty cycle of the crane is an important consideration. Will your crane be working 24 hours per day, seven days per week, or will it work a standard 38-hour week with the occasional overtime? And during those working hours will it be lifting your product once an hour or five times per minute?

It is important to make sure your engineer has all the details of your needs so that they can put together a crane that suits your unique application.

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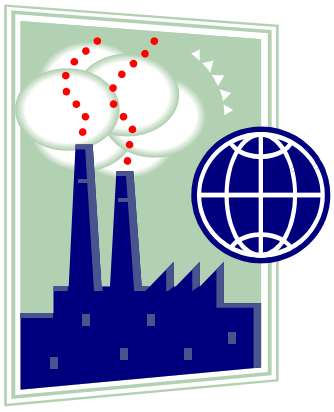
YOUR ENVIRONMENT – The physical environment in which you will be using the crane will make a difference as to the materials used in the manufacture of the crane. Will it be used indoors or outdoors? Is it in an atypical environment that is corrosive or gets to extreme temperatures? Is it going into a sterile environment such a food manufacturing? All of these elements will be important in designing your crane.

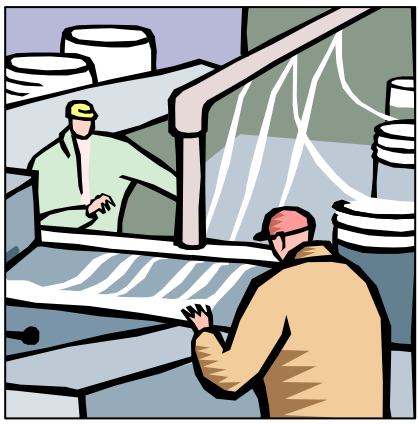


If your roof or wall is not suitable to support a mounted crane, you might want to look into a free-standing that will be supported by attaching it to the floor.

YOUR FACILITIES – When determining the type of crane and how it will be installed, you must take into consideration the limitations of your facilities. If you are looking at a roof or wall mounted crane, you must make sure the building is suitable to bear the loads; if you are looking at a freestanding crane, the floor must be similarly assessed.

Although you will only have to do it once, crane installation should also be taken into consideration. If you have to close down your factory for several days while someone installs a crane, you will lose a significant amount of working hours and therefore finished products.

Once you have determined which type of crane you want, you should take into account your manufacturing needs. Your crane must suit your current production line. You might need it to move things around bends. You use a machine for items A and B, but then need them to go to separate places. All of these needs must be taken into account when selecting a crane.



You want a crane that works with your system; you don't want to come up with an entirely new system just to accommodate one tool.

Cranes are rated from C1 (lowest) to C9 (highest). This rating is based on the duty cycle of the crane – how many hours per day it is operation and how frequently it is used in that time period.

QUALITY – Of course, you want a crane that is engineered to meet or exceed the crane codes. You may want to look at the classification (rated from C1 to C9) of the crane to make sure it will be able to handle everything you require in terms of lifespan and duty cycle.

Some additional points that you may want to take into consideration are the consistency of the material used in the construction of the crane, the in-house quality control of the manufacturer, and the testing process. Many manufacturers in Australia may also want to see if the product is Australian made.

A high-quality product will last longer than a low-quality product. If you simply purchase the cheapest crane on the market, you might end up with higher long-term costs.

Long term costs include installation, maintenance and annual inspections – there can be hidden long term costs with an initially inexpensive product.

COST – The price of the crane is only the first part of this equation. You also must add in the cost of installation, maintenance, and future needs. As mentioned before, every hour your factory is closed down for installation is an hour that can't be spent manufacturing your product. You may even have to pay for extra labour if the installation requires special tools or welding.

The Australian Crane code requires that your crane be inspected every 12 months to make sure it is working correctly. If you have a crane that is difficult to inspect or needs to be taken apart to be inspected you will again lose valuable working hours. And in between inspections the crane should be easy to clean and access for simple maintenance procedures. If one trolley has a broken wheel, you don't want to have to take the whole thing apart and then put it back together.

Once your crane is up and running, you expect to see an increase in productivity which will ideally lead to an increase in orders (and profits!). If your business continues to grow, you may have to move to a new factory. Will your crane be able to easily move and grow with your company?

Considerations in choosing a crane company

Now you've decided what type of crane you need and have a good idea of what you need it to do and where it is going to go. How do you decide which crane company will provide you with the best product? Again, there are several important factors to take into consideration including expert knowledge and post-sale service.

When selecting a crane manufacturer, you need someone who understands both the legal requirements of the crane code and the production requirements of your business.

EXPERTISE – There are very strict codes in Australia governing crane design, manufacture and testing. The rules are listed in the Australian Standards 1418. You want to get your crane from someone who knows and understands the codes and the laws. After all, one of the reasons you are probably considering a crane in the first place is that it is a safety product that can have a positive effect on your WorkCover costs.

You also want someone who will understand your specific application and help you get the right crane. If the representative from the company is lacking in technical and engineering knowledge, they might not be able to fully appreciate your needs.

SERVICE – Just as you want your crane to last a long time and grow with your company, you want the crane company to be around and be accessible for future contact. If you have a question about your crane, you probably want to speak with a local expert instead of trying to time your phone calls to fit into another country's working hours. If your company does end up growing and moving, you will want to work with the original company to extend your crane and make it work with your new production line.

You expect your crane to last a long time and you should expect its manufacturers to be around just as long.

Now that I know what I need, where should I go?

Once you have determined what you need in a crane, you can shop around and ask the right questions to make sure you get what you want.

You will certainly want to shop around for cranes and request quotes from several companies. It may turn out that Bomac Engineering's Altrac system has exactly what you need. When you contact us to request a quote, you can discuss it with a certified engineer who understands your needs and knows all the requirements of the crane code.

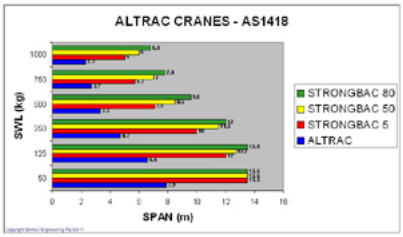
Now that you've assessed your crane needs, you might want to take into consideration a few facts about Altrac.

DESIGN – Bomac Engineering's Altrac design is an external track system. It is a rounded extrusion made of a strictly controlled aluminium alloy designed to work with Bomac's Trac Trolleys. Any type of lifting device can be attached to an Altrac crane.

TYPES – Altrac can be used to create jibs, monorails and overhead gantry cranes.

APPLICATION – Altrac cranes can accommodate a safe working load (SWL) of up to 1000kg. These cranes are rated C9, the highest ranking available, which will accommodate high-level duty cycles.

ENVIRONMENT – This rail is made of marine-grade aluminium, which means it can withstand many corrosive environments. If necessary, our steel trolleys can be made with sealed-for-life bearings for dusty environments or finished with copper nickel chrome and stainless steel components for sterile environments such as food handling.



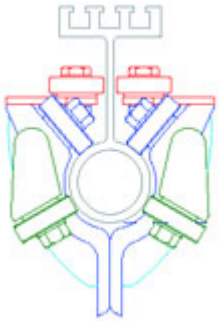
Click on the image above to open a separate PDF file with StrongBac span charts.

ACCOMMODATING YOUR FACILITIES – One of benefits of choosing our aluminium product over a steel one is that it weighs about 7kg per metre, putting relatively little strain on your building structure.

The light weight of the track also means it can span long lengths without supports. With the use of our product, StrongBac, which attached directly to Altrac, even longer spans can be achieved.

Altrac cranes can be designed with switches, turnouts and bends to suit your production line.

The design of Altrac and the Trac Trolleys means little rolling resistance and easy maintenance.



The track can be shaped into curves to suit your production line. Switches and turnouts can also be integrated to create crane crossroads which will give several options as to which direction the product can be moved.

QUALITY – Due to the optimised cross section, every Altrac crane is rated to C9, which means it will last you a very long time. Altrac is manufactured in Victoria to very strict alloy specifications. Every time a new product is developed by one of our engineers, it is put through rigorous tests make sure it meets and exceeds what our customers will require of it.

COST - The unique design of the track makes it easy and quick to install – all you need is a spanner and pop riveter. Most clients find their crew can install it themselves. The external design of the track makes it easy to visually inspect. The round shape the trolley runs on doesn't leave a flat surface for dirt to settle, so the system is self-cleaning.

Because the trolleys are virtually free-running, (less than 0.5% rolling resistance) the load can be moved with very little effort. This means very little strain on your employees' backs and legs.

EXPERTISE – Bomac quotes are written up by qualified engineers who understand the product and frequently design new elements for it. The inventor of Altrac still works here and makes sure every Altrac product added upholds the idea of a modular kit crane that can be adapted to suit individual applications while still being easy to install and maintain.

CUSTOMER SERVICE – Bomac Engineering opened its doors in 1984 and has been able to adapt its products and services to a radically changing Australian manufacturing environment since that time. When you purchase a crane from Bomac, you can rest assured the company will be around to answer your questions without having to refer to a parent company offshore.

AUSTRALIAN MADE AND OWNED

Bomac Engineering Pty Ltd Unit 1 153 Wedgewood Road Hallam VIC 3803
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