

August, 2017

The Wind Effect

If you have visited our website lately, then you have seen our motto, “Safe. Steady. Strong.” These words, I believe, are how most people would identify with our cranes as they see one going down the road...or better yet, when setup on a customer’s job site. I think most would agree that a crane evokes a powerful presence, and why not? After all, these machines are engineering marvels. A crane’s lifting capabilities and reach continue to increase year-in, year-out as new models are released. Modern equipment, like ours, come equipped with all the bells and whistles. Crane manufactures’ technological advancements increase with every new model. However, with all these advancements, there is one natural phenomena that has been and remains an engineering challenge—the wind.

It may be hard to comprehend that a piece of equipment as big and sturdy as a crane could be affected by the weather so typical of our great plains. But unfortunately, wind has a massive affect on the strength and stability of a crane. In fact, the impact of wind manifests itself in a variety of different ways.

The usable capacity of the crane is diminished as wind-speed increases. All of the cranes on our fleet come with wind-speed charts (provided by the manufacturer) that explicitly outline how much a crane’s load must be adjusted due to the wind. Additionally, the larger cranes have further instruction based on the boom length and configuration. Example: At a wind-speed of 20mph, our 75 ton Link Belt’s load capacity is reduced by 40%.

A second factor is the shape and dimension of the load being handled. Anyone who has ever flown a kite understands the affect that wind has on a flat, heavier-than-air surface. The kite reacts against the air to create a lift and drag. One must learn to compensate when flying a kite, otherwise the kite’s string may leave you with minor rope burns or even worse, altogether. Similarly, when wind is present during crane operation, the load can react to that of a kite, lifting and dragging the load and potentially the boom out of the crane’s vertical axis. When this happens, it can put a dangerous strain on the components of the crane and may lead to catastrophic failure. That is why the shape and dimension of a load must be taken into serious consideration on a day when the wind is present. Note: Any further considerations due to the wind will be made in addition to that of the manufactures’ wind-speed charts.

Furthermore, when wind is present, it may become difficult or impossible for personnel to catch, control or guide the object being lifted. As stated before, the load can lift and drag in and out of the crane’s vertical axis. When this happens, it can make the operation of the crane’s “swing function” remarkably hard to



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control in a smooth manor. This lack of control makes the entire lifting process extremely dangerous and must be avoided at all cost.

Luckily, as mentioned before, our cranes are equipped with the latest technology. We use wireless anemometers (see “wind meter”) attached to the boom tip to give our crane operators the job site’s current wind-speed in real time. This allows our operators to make on-the-spot decisions based on up-to-date information. If a crane does not contain this option, we keep handheld anemometers on hand so that our operators can track wind conditions throughout the day if needed. In addition, we utilize daily forecasts from at least two sources every morning before heading to the jobsite. It’s imperative to know what to expect throughout the day, because even a slight breeze can have an impact on the safety of our work.

In closing, wind can have a serious impact and because we are striving to provide you with the safest possible service, Pro Crane: maintains a strict coherence to the manufactures’ guidelines on wind-speed to load chart capacity reductions, adheres to OSHA’s ruling that no personnel platforms are to be used on a crane in winds (including gusts) above 20mph, and to take it a step further, caps our maximum, allowable, operable wind-speed at 30mph for all of our cranes. Even though wind is a hazard, when utilizing the above guidelines, our cranes will always continue to be “Safe. Steady. Strong.”

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