Industry Leading VacLifts

Revolutionising Productivity & Safety
Increase Productivity & Safety When Handling Pipes

Pipeline Plant Hire has drastically improved the productivity and safety of pipe handling with its VacLifts industry leading design.

Over recent years there has been very few innovations in the pipeline industry that have contributed as much to the improvement of safety in the pipeline industry as the handling of pipe, using vacuum lifting equipment, also known as VacLifts.

Uniquely VacLifts bring to the pipeline industry significant productivity benefits achieving double the output of traditional physical lifting methods.

Pipe is moved a number of times between manufacture, shipping, stock pile yards, stringing and ultimately laying. Traditionally at each one of these points there were a number of people attaching and detaching slings, pipe clamps or chains on and off the pipe. This meant that moving one piece of pipe took several minutes and several workers, reducing productivity hugely and putting more workers than necessary at risk of danger.

The introduction of VacLifts has resulted in the machine operator, protected by the control cabin, being the only person directly involved in moving the pipe.
Development based on extensive industry knowledge

Pipeline Plant Hire has built its reputation in being a leading innovator in the Australian pipeline industry, soon after an imported Vacuum Lifting device was acquired for our hire fleet a number of improvements were identified to increase versatility and safety.

These improvements went in order of:

1. Improving lifting capacity and visibility by removing the pump unit from the boom of the excavator to the excavator counterweight
2. Next was removing the noisy dedicated diesel motor and it’s fuel tank, which was replaced with a hydraulic motor driven from the excavator, reducing noise, heat, burn hazard and improving reliability
3. Further improvement was the development of a unique swivel joint allowing 360 degree horizontal rotation to the shoes
4. Shoe interchangeability to suit pipe diameter sizes continued the innovation, which has now resulted in the largest shoe selection available
5. Operator interface, incorporating visual and sound indicators and warnings, increasing safety of our VacLifts

This constant development and Pipeline Plant Hire’s innovative thinking has turned a good machine into a great machine. We are constantly striving to improve our products to give our customers the products they need to significantly improve productivity. New developments are already in the design stages to further advance the VacLift system.
Significantly enhanced excavator efficiency

The efficiency of vacuum lifts has been improved by the design of the carrying box for the VacLift. It is attached to the back of the excavator and is a permanent part of the machine. It acts as a counterweight to improve lift performance of the excavator. These modifications can be clearly seen in the picture of the excavator below. By having the carrying box several positive features have been achieved such as:

- Downsizing the excavator – in competitors designs the 1 ton vacuum lift hangs off the arm, therefore reducing the lifting capacity. When this is removed as with Pipeline Plant Hire’s design this increase lifting capacity
- To further increase lifting capacity the carrying box is then relocated to the rear of the excavator and acts as an additional counterweight
- In most cases this means a 45t excavator that was once needed can be reduced to a 30t and still lift the same weight
- The carrying box can be carried from one site to another on the excavator, thereby saving on costs of having mechanics detaching the VacLift off the machine every time it needs to be floated
Safety Improvements

With traditional pipe moving techniques there needs to be an excavator operator and at least one other worker to attach slings. This is obviously time consuming, however more importantly it can also be dangerous for the worker on the ground.

A big advantage with the VacLift design is that only the excavator operator needs to move a piece of pipe, therefore by removing the worker on the ground it diminishes the chances of them being injured. The whole operation of loading/unloading trailers or pipe carriers and/or stringing out lengths of pipe is made more efficient and much safer with the use of VacLifts.

The Vacuum Lifts are also integrated with the excavator providing the operator with in cab control and monitoring as well as improved lifting capacity by the transfer of the pumps and control unit to the counterweight of the excavator.

With our unique design the operator is able to have complete 360 degree control over the pipe at all times which further improves safety.

It is reasons like this that VacLifts have become the pipeline industry preference for loading and unloading pipes wherever this is needed.
Cost Savings

The pipeline industry is extremely competitive, which means that any advantage a company can get over its rivals can mean getting a multi-million dollar contract. Using VacLifts to move or lay pipe gives a distinct advantage over the competition. VacLifts can move a section of pipe in less than one minute, compared to traditional sling methods which can take up to four minutes! When this is the case the savings in not only time, but cost become very apparent.

An example of this was very clear in a recent project where there were 36,000 segments of gas pipe. Each of these segments needed to be moved an average of 5 times, therefore there was a total of 180,000 moves to be completed during the project.

Sling method:

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\begin{align*}
\text{4 minutes per move} & \\
180,000 \text{ moves} \times 4 \text{ minutes} & = 720,000 \text{ minutes} \\
720,000 \text{ minutes} & \div 60 = 12,000 \text{ hours of moving}
\end{align*}
\]

VacLift method:

\[
\begin{align*}
\text{1 minute per move} & \\
180,000 \text{ moves} \times 1 \text{ minute} & = 180,000 \text{ minutes} \\
180,000 \text{ minutes} & \div 60 = 3,000 \text{ hours}
\end{align*}
\]

These comparisons demonstrate that when using a VacLift there can be huge time savings. Converting this into cost savings is very significant, with less hours worked and having no workers other than the excavator operator.
VacLift Models

We now have a range of VacLift equipment that spans from our smallest unit used to feed poly pipe to fusion welding machines lifting a few hundred kilograms, to our largest units capable of lifting large diameter high pressure pipe weighing 20 tons plus, providing an industry leading range of options.

A full range of pipe shoes and lifting beams allow Pipeline Plant Hire to provide you with the best pipe handling equipment in the industry, whatever application you may need it for.

The picture on the right shows a small amount of our vast selection of shoes for use on poly pipe. Due to poly pipe being so flexible two of these shoes are attached to a spreader bar which then allows longer pieces of pipe to be transported easily. An example of which can be seen in the picture below.

In the slight chance that Pipeline Plant Hire doesn’t have an attachment to suit your exact needs, we can customise attachments to suit your application.
Product Development With Continued Innovation

The next chapter to the pipe handling story has recently arrived with the introduction of our Pipe Installation Attachment. For the installation of mechanically connected water pipes incorporating flanges and ‘O’ rings, the industry standard VacLift has alignment guides attached including web cam technology. This allows the excavator operator to confirm that the pipe is aligned and the joint set in the correct position.

Field testing has shown a significant productivity improvement over conventional methods while removing people from the trench.

To watch a video of this attachment in operation follow the link https://www.youtube.com/watch?v=w3LmX3ppSAM. This video demonstrates that it takes less than 2 minutes to complete the operation from initial pickup to completed procedure. This is a huge improvement from conventional methods and means that kilometres of pipes can be laid in a day instead of meters!

7. VacLift with attachment connecting two sections of poly water pipe together
Poly Pipe Vaclifts in Action

8. Long length of poly pipe being stored using a spreader bar with two vacuum shoes fitted

9. Lifting a long length of poly pipe

10. Loading pipe into a fast fusion machine
Steel Pipe VacLifts in Action

11. Steel main line gas pipe being transferred from storage yard to pipe stringing

12. Great visibility and control directly from cab

13. Moving large sections of joined steel pipe